Ontario

Ontario Geological Survey
Open File Report 6131

Report of Activities, 2003 Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District

2004

104-04988/

Ontario

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Kirkland Lake District

by

G. Meyer, G.P.B. Grabowski, D.L. Guindon and E.C. Chaloux

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Meyer, G., Grabowski, G.P.B., Guindon, D.L. and Chaloux, E.C. 2004. Report of Activities 2003, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake District; Ontario Geological Survey, Open File Report 6131, 52p.

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Ontario

Ontario Geological Survey
Regional Resident Geologist Program

Kirkland Lake Regional Resident Geologist (Kirkland Lake District)–2003

by

G. Meyer, G.P.B. Grabowski, D.L. Guindon and E.C. Chaloux

2004

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Kirkland Lake Regional Resident Geologist (Kirkland Lake District)–2003

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INTRODUCTION

The price of gold in 2003 ranged from a low of US$319.90 to a high of US$416.25 per ounce and the cumulative average was US$363.38, a rise of US$53.65 from the previous year (www.kitco.com).

Total gold production in 2003 from all producers in the Kirkland Lake Regional Resident Geologist District (see Mining and Milling Activity – Precious Metals in this report and Tables 2 and 9) was 5 610 773 grams of gold or 180 391 ounces of gold. This represents a decrease of 12.2% from 2002. Total historic gold production in the district is 41 395 955 ounces of gold recovered from 138 085 322 tons of ore plus 202 399 ounces of gold from 4 292 634 tons of tailings.

Two gold mines operated east of Matheson close to the Quebec border and one in Kirkland Lake. These are the Holloway Mine, owned by Newmont Mining Corporation and Teddy Bear Valley Mines Limited; the Holt-McDermott Mine, owned by Barrick Gold Corporation; and Kirkland Lake Gold Inc.'s Kirkland Lake properties consisting of the former Macassa, Kirkland Lake, Teck Hughes, Lake Shore and Wright Hargreaves properties (Figure 1). Mining and milling operations in the Kirkland Lake Resident Geologist District at the end of the year directly employed approximately 600 people.

Extender Minerals of Canada Ltd. operated an underground barite-mining operation in North Williams Township.

Several junior mining companies explored large mining claim holdings within the Timiskaming Structural Deformation Zone (TSDZ) for their diamond potential. Sudbury Contact Mines Limited extracted a mini bulk sample from the 95-2 kimberlite pipe.

Mustang Minerals Corp. acquired a nickel-copper property from Outokumpu Mines Inc. in Bannockburn Township and subsequently discovered a new zone with promising nickel grades.

In 2003, there were approximately 85 active exploration projects in the Kirkland Lake Regional Resident Geologist District (Tables 3 and 4).

At the end of 2003 there were 28 983 active mining claims in the Larder Lake Mining Division (see Table 1). One hundred and ninety eight (198) Assessment Work reports were incorporated into the Kirkland Lake Assessment File system (Table 3). These reports, approved for assessment credits, represent $4 895 916 in exploration expenditures and is an increase of 27.5% as compared with 2002. One hundred and three (103) records of publications were added to the library database (Table 6).

MINING AND MILLING ACTIVITY – PRECIOUS METALS

Barrick Gold Corporation – Holt-McDermott Mine

In 2003, Barrick Gold Corporation's Holt-McDermott Mine in Holloway Township (Figure 1) mined and milled 506 905 t to produce 89 515 ounces of gold. The recovered grade was 0.170 g/t Au at a mill recovery rate of 94.3%. Ore reserves, at the end of December 31, 2003, in the proven category were 27 778 t grading 5.21 g/t Au or containing 4649 ounces of gold. In the probable category, 280 216 t of ore grading 5.54 g/t Au or containing 49 937 ounces of gold. The combined ore reserves in the proven and probable categories were 307 994 t grading 5.51 g/t Au or containing 54 586 ounces of gold. In addition, indicated resources were 410 490 t grading 6.66 g/t Au or containing 87 889 ounces of gold. The inferred resources were 120 233 t grading 9.25 g/t Au or containing 35 767 ounces of gold.

Drifting and raising in 2003 amounted to 6183 m and 399 m, respectively. Underground diamond drilling totalled 10 552 m exploration and 27 075 m definition drilling in approximately 482 holes. Surface exploration drilling totalled 3087 m in four drill holes.

Capital expenditures in 2003 were $244 243. Planned development and drilling for 2004 is approximately $1.1 million.

The mine is expected to cease operations by fourth quarter 2004. As a result, production is expected to decrease to approximately 50 000 ounces at a cash cost of $215 to $225 per ounce.

At year-end, the company employed 201 people (C. Todd, Barrick Gold Corporation, personal communication, 2004 and www.barrick.com).

Kirkland Lake Gold Inc.

At April 30, 2003 (the end of the company's fiscal year), Kirkland Lake Gold Inc. production on its Kirkland Lake properties (Figure 1) totalled 24 589 ounces of gold from 75 707 tons of rock with a mill recovery rate of 94.65%. Reserves at year end (April 30, 2003) were calculated as follows: proven 497 700 tons at 0.42 ounce Au per ton (209 034 ounces) and probable 554 100 tons grading 0.51 ounce Au per ton (282 591 ounces). Resources were determined to be: measured 986 200 tons at 0.36 ounce Au per ton (355 032 ounces), indicated 2 361 700 tons at 0.31 ounce Au per ton (732 127 ounces) and inferred 558 900 tons grading 0.35 ounce Au per ton (195 615 ounces).

During 2003, underground drilling totalled 37 850 feet of exploration and 7o 000 feet of definition drilling in 230 holes. Surface drilling totalled 15 000 feet in 32 holes with about 60% being definition drilling.

Capital expenditures for 2003 totalled $9.6 million, including equipment and rehabilitation. Planned development and drilling expenditures for 2004 are set at $8.3 million.

The mine employed 200 at the end of the year (http://www.klgold.com, and M. Sutton, Kirkland Lake Gold Inc., personal communication, 2004).

Newmont Mining Corporation and Teddy Bear Valley Mines Limited – Holloway Mine

In 2003, the Newmont Mining Corporation and Teddy Bear Valley Mines Limited Holloway Mine in Holloway Township (Figure 1), mined 544 864 t of ore. The ore was custom milled at the Barrick Gold Corporation Holt-McDermott mill and produced 79 031 ounces of gold in 2003 at a mill recovery rate of 92.5%.

Proven ore reserves at the mine, on December 31, 2003, were 855 280 t grading 5.96 g/t Au or containing 163 887 ounces of gold. Probable reserves were 1 038 937 t grading 6.79 g/t Au containing 226 870 ounces of gold. Resource estimates at the end of 2003 were defined as: measured 46 000 t grading 4.17 g/t or 6167 ounces of gold, indicated 523 000 t grading 5.34 g/t or 89 791 ounces of gold and inferred 707 000 t at 7.25 g/t or 164 797 ounces of gold.

During 2003, the joint venture partners completed 4077 m of drifting and 247 m of raises. Underground definition diamond drilling totalled 25 920 m in 458 holes. Surface exploration drilling totalled 2426 m in 19 holes and underground exploration drilling was 5918 m in 13 holes.

Capital expenditures for the year amounted to $4 062 000 million. The proposed capital and operation budget for 2004 is $7 459 573, which includes $330 000 in exploration drilling and $840 000 for definition drilling.

At year-end, the mine employed 137 people (http://www.newmont.com/en/, and Sylvain Picard, Newmont Mining Corporation, personal communication, 2004).

PolyMet Resources Inc.

Polymet Resources Inc. resumed precious metal concentrate shipments to the Home smelter, Noranda Inc. in July of 2003 after the Home Smelter reopened after a lengthy labour strike. Business was also very slow for the Bullion Circuit as only several shipments of Silver-Gold metal bullion were shipped out to Johnson Matthey in 2003.

The company spent much of the year reorganizing internal management and plant operations. The wet Chemical Extraction Circuit was closed down in early 2003, which was then followed by an extensive program of clean-up and property rehabilitation. Commercial assaying operations continued throughout the year. Since November of 2003, the plant has been put on "Care & Maintenance" waiting for new contracts.

The company completed its new business plan in October 2003. The company is currently in the process of completing its "Certificate of Completion" for plant and property environmental rehabilitation as well as its "ISO 9000 Quality of Assurance Program Certification". Expected completion for both programs is anticipated by the second quarter of 2004 (G. Chitaroni, personal communication, 2004).

SMC (Canada) Ltd. – McAlpine Mill

SMC (Canada) Ltd., a subsidiary of Sabin Metal Corporation of East Hampton NY, operates the McAlpine mill in Cobalt (Figure 1). The 200-ton per day plant is a gravity-flotation circuit and recovers gold, silver and the PGM group of metals from slag, crucibles and refractory brick from its refineries. SMC (Canada) Ltd. employs 18 full-time employees (D. Cleroux, SMC (Canada) Ltd, personal communication, 2004).

MINING ACTIVITY – INDUSTRIAL MINERALS

Extender Minerals of Canada Ltd. – Barite

Extender Minerals of Canada Ltd. produced approximately 12 000 t barite in 2003. The mine in North Williams Township (Figure 1) provided all ore that was processed at the Powell Township mill. Mining at the North Williams operation is via a decline ramp. The ore at this mine is exceptionally pure, grading 99% $BaSO_4$. Ore reserves at the North Williams Mine exceed four years and there are some reserves remaining at the Yarrow Mine. Some development work was done on the Langmuir Township barite property. The company employs 25 people on a year-round basis and the work force generally increases in summer (R. Hill, Extender Minerals of Canada Ltd., personal communication, 2004).

Miller Minerals, a Division of Miller Group Inc. – Lime and Limestone Production Facility, Haileybury, Ontario

2003 was an eventful year for Miller Minerals. Production levels were maintained at near or above normal of 60 000 t. Enviro Lime deliveries continued to the Kam Kotia project as required. A hydrated lime in bulk and bulk bags was added to their product list in 2003 to prepare for future markets in waste and potable water treatment. Their quality management system registered with QMI was upgraded from the 1994 standard to the 2000 standard. The company is now ISO 9001:2000. They also obtained NSF International Certification for hydrated lime products required for potable water treatment. As in the past, Miller Minerals continues to work with the mining, pulp and paper, environmental and construction industries to find new innovative applications for lime and limestone products (Terry Overton, Miller Minerals, personal communication, 2004).

ADVANCED EXPLORATION

Apollo Gold Corporation – Black Fox Property

Apollo Gold Corporation purchased the Glimmer Mine (now referred to as the Black Fox property) from Exall Resources Limited and Glimmer Resources Inc. in September 2002. The company conducted an intensive core drilling program throughout 2003 to define resources and reserves for proposed open-pit and underground operations on the Black Fox property. Open pit proven and probable reserves are 2 953 000 t grading 4.81 g/t Au containing 457 100 ounces of gold. In addition, mineralized material is estimated to contain 552 000 ounces of gold. All proven and probable reserves as well as mineralized material estimates have been high-grade capped at 120 g/t Au. The total drilling program for the Black Fox Project currently includes 297 holes and over 82 622 m of core drilling. An additional 40 000 m of core drilling from the surface is planned for 2004.

J.S. Redpath Limited was awarded a contract to develop an exploration drift from the existing underground workings on the 235 m level (235 m vertically from the surface). The 1250 m long exploration drift, to be developed in the hanging wall along the strike of the ore zone, will be used as a platform for core drilling. An estimated 80 000 m of underground core drilling is forecast over the next 18 months. The drift will also be used to develop test stopes for underground mining, to obtain a bulk sample for metallurgical studies and to allow the company to complete additional studies to delineate the next portion of the underground mineralization potential for the project.

John Haflidson (former manager of Barrick Gold's Holt-McDermott Mine) was hired as the Project Manager for the Black Fox Project (Apollo Gold Corporation, press releases, January 14, 15 and February 3, 2004, http://www.apollogold.com/).

Sudbury Contact Mines Limited – 95-2 Kimberlite

Sudbury Contact Mines Limited completed a Large Diameter Drill program (LDD) on its Timiskaming Diamond Project. A mini-bulk sample of over 800 wet tonnes was extracted from six holes scattered across its most promising diamond bearing kimberlite 95-2. Included in this sample is approximately 140 t of weathered tuffisitic kimberlite breccia (TKB) material, 530 t of fresh TKB, 93 t of fresh hypabyssal kimberlite and 68 t of dilute TKB material. All of the holes reached their target depths and two of the holes located in the western portion of the pipe exceeded expectations by ending in hypabyssal kimberlite at a depth of 300 m. These holes were expected to exit kimberlite at roughly 200 m, based on the preliminary 3-D model, and therefore may add to the overall tonnage of the pipe. A new 3D model is currently being developed. SGS Lakefield Research Limited of Lakefield, Ontario, has constructed a 10 t per hour pilot plant to process the material. Sudbury Contact anticipates releasing sample grades and a diamond parcel valuation in the first quarter of 2004 (Sudbury Contact Mines Limited, press release, December 09, 2003, http://www.sudburycontact.com/).

EXPLORATION ACTIVITY

Acrex Ventures Ltd. – Michaud Township Properties

Acrex Ventures Ltd. completed magnetometer and IP surveys, and a 1500 m diamond drilling program in Michaud Township to test the "55" and "Western" zones. The 77 claim unit Michaud property has several gold-bearing zones identified along the mineralized horizon, which hosts the Southwest Zone (not part of the property). This zone has an inferred resource of 2.4 million t averaging 6.07 g/t Au or containing 468 000 ounces of gold. Acrex holds an option to acquire up to a 70% interest in the property from Moneta Porcupine Mines Ltd. Hole MA-03-10 intersected 4.37 g/t Au over 4.28 m in the "55" zone and Hole MA-03-14 intersected 5.61 g/t Au over 4.0 m in the Western Zone (Acrex Ventures Ltd., press releases, February 12, April 15, October 1, 2003 and January 6, 2004, http://www.acrexventures.com/).

Dianor Resources Inc. – Pacaud Township

Dianor Resources Inc. optioned the diamond potential of the Pacaud property from Globex Mining Enterprises Inc. As part of the agreement, Dianor diamond drilled 4 holes to test for gold mineralization. Drilling by Lac Minerals in 1979 intersected ultramafic breccias in two drill holes (79-2 and 79-3) and the drill hole collars have been relocated on the property. Diamond drilling on the Pacaud property intersected 3 sets of kimberlitic dikes. The widest intersection was 7.2 feet. Twelve diamond drill holes were completed on the property (Dianor Resources Inc., press releases, August 25, September 29, October 22 and November 13, 2003, http://www.dianor.com/index_en.html).

Goldeye Explorations Limited – Tyrrell Twp

Goldeye Explorations Limited completed surface and borehole spectral IP surveys followed by trenching on the LaCarte claims in Tyrrell Twp. Trenching revealed that the green-carbonate zone is up to 20 m in width. Additional trenches were completed as follow-up to untested gold anomalies in soil, IP anomalies and following shear zones. Channel sampling of the LaCarte zone returned gold values over a NNW strike length of 30 m and an ENE width of about 16 m. A channel sample cut diagonally across the middle of the zone ran 5.8 g/t Au over 21.2 m. The company completed a 15-hole diamond-drilling program totalling 1806 m with 13 holes on the Hydro Creek property and 2 holes on the Goldeye property to the east. Assay results released included 5.81 g/t Au over 12.5 m in hole H-03-06 (Goldeye Explorations Limited, press releases, March 6 and 7, May 26, June 25, July 29, October 28 and 31, December 8 and 31, 2003, http://www.pathcom.com/~goldeye/).

International KRL Resources Corp. – Macmurchy Twp

International KRL Resources Corp. completed 2 diamond drilling programs on the Golden Sylvia Iron Formation (GSIF) zone in Macmurchy Township. The initial program tested the zone with 12 holes totalling 2242 m. Assay results of 10.08 g/t Au over 0.50 m were returned from hole GS-25. The mineralized zone is hosted in an altered iron formation. During the fall, a further 7 holes totalling 690 m were completed. Two of these holes were on the Jude zone (formerly the 30-31 zone). Hole J0301 returned 1.74 g/t Au over 5.15 m including 6.21 g/t Au over 0.5 m. The highlight of the recent program was Hole GS30, which intersected significant gold in the lower contact lens of the GSIF zone. The lower contact lens assayed 1.47 g/t gold over 18.65 m (0.043 oz./ton gold over 61.17 feet). Included within this interval were higher-grade intersections that assayed 2.53 g/t gold over 9 m and 8.75 g/t Au over 1.5 m. The best intercept from the program was also obtained from within the GS30 contact lens; this sample assayed 10.17 g/t gold over 1 m (International KRL Resources Corp., press releases, May 5, November 13 and 17, and December 1, 2003, http://www.krl.net/news/030505.htm).

Liberty Mineral Exploration Inc. – McAra Lake Property

The McAra Lake property in Dufferin Township was optioned to Liberty Minerals Exploration Inc. after Mustang Minerals Corp. relinquished their interest (see below). Three diamond drill holes were completed to test the

stratigraphy and determine the orientation of the 2 previously discovered cobalt-bearing veins. Results were reported from diamond drill hole E-2. The intersection between 48.5 and 49.0 m down hole returned 7.33% Co and 0.088% Cu. The intersection between 49.0 and 50.0 m returned 0.036% Co and 4.81% Cu (Liberty Mineral Exploration Inc., press releases, October 9 and November 12, 2003, http://www.libertymineral.com/).

Mustang Minerals Corp. – McAra Lake Property

A $350 000 exploration program, consisting of line-cutting, ground magnetic, EM and IP surveys, geological mapping and diamond drilling was completed by Mustang Minerals Corp. on the McAra Lake property in Dufferin Township. The surveys were centred over a surface showing of Cu-Zn-Pb mineralization exposed by trenching in 2002. A continuous geophysical anomaly, with a minimum strike length of 400 m, has been outlined. A total of 11 holes totalling 1335 m were completed at one of eight airborne EM targets. Each of the first three drill holes intersected polymetallic mineralization consisting of zinc, copper, lead, cobalt, silver and gold. Assay results returned anomalous values ranging up to 0.77% Zn, 0.11% Cu, 0.21% Pb, 18 g/t Ag and 0.27 g/t Au over widths of up to 1.0 m. Hole YMU-6, averaged 1.43 g/t Au over a core length of 11 m including 3.07 g/t Au over a core length of 4 m. In June the company announced that it would not continue with the option (Mustang Minerals Corp., press releases, January 29, February 14 and 24, March 7 and 18, April 8, and June 26, 2003, http://www.mustangminerals.com/).

Mustang Minerals Corp. – Bannockburn Nickel Project

The Bannockburn Nickel project was optioned from Outokumpu Mines Inc. by Mustang Minerals Corp. Mustang can earn 100% interest in the property, subject to a 2% net smelter royalty, by spending $350 000 on exploration and making a $60 000 cash payment on the 143 unit property. Discovered in the 1990's, Outokumpu outlined 2 styles of nickel mineralization: Kambalda-style massive and heavily disseminated sulphides in the footwall embayments of komatiitic flows; and Mt. Keith-style disseminated sulphide mineralization.

Multiple geophysical surveys were previously completed and the results were recompiled and interpreted. Follow-up overburden stripping on the C-zone revealed a highly altered komatiitic flow with disseminated, blebby and massive sulphides. The mineralized zone was stripped over a strike length of 125 m. Within this zone, massive sulphide lenses, up to tens of metres in length and up to 3.5 m in thickness were exposed. Results of chip and grab samples of the C-Zone returned nickel values up to 4.85% and copper values up to 0.5%. By year end, 9 short diamond drill holes were completed on the C-Zone (Mustang Minerals Corp., press releases, June 16, September 2, October 27 and 30, November 5 and 14, December 17, 2003 and January 9, 2004, http://www.mustangminerals.com/).

NFX Gold Inc. – Bear Lake Property

NFX Gold Inc. completed a 7-hole 1491-m diamond drilling program on its Bear Lake property, east of the Cheminis Mine in McVittie Twp. The program was designed to test a new quartz-carbonate stockwork, discovered by surface stripping, over a strike length of 625 m. All seven holes intersected "flow-ore" style mineralization below the stockwork. The most significant results came from diamond drill hole NFX-06-03, which intersected 1.05 g/t Au over 1.62 m; 1.18 g/t Au over 0.91 m; 2.14 g/t Au over 7.47 m; 3.38 g/t Au over 0.91 m within the new "flow-type" zone at vertical depths ranging from 35 to 50 m below surface (NFX Gold Inc., press releases, September 3 and November 20, 2003, and January 8, 2004, http://www.nfxgold.com/).

Queenston Mining Inc. – Abitibi Project

Queenston Mining Inc. completed eight diamond drill holes totalling 3159 m in the third quarter of 2003, to follow-up Mobile Metal Ion (MMI) geochemical anomalies. Alteration and mineralization associated with the Lake Abitibi Deformation Zone were intersected. The highest gold assay was 0.3 g/t over 1.5 m. Further exploration will depend on the results of the high resolution magnetic survey to be completed as part of the Discover Abitibi Initiative (Queenston Mining Inc., press releases, July 9 and November 19, 2003, http://www.queenston.ca/).

Queenston Mining Inc. – Kirkland Lake Properties

AMALGAMATED KIRKLAND

Six diamond drill holes were completed on Queenston Mining Inc.'s Amalgamated Kirkland property in Teck Twp. On the southern portion of the property, four holes tested IP anomalies near the contact of the Murdock Creek Syenite Stock and the Cadillac-Larder Fault Zone. Diamond drill hole AK-03-01 intersected a new zone that assayed 1.3 g/t Au over 17.3 m, including a section that assayed 2.8 g/t Au over 2.5 m. Two diamond drill holes tested gold-bearing structures to the north of the Amalgamated Kirkland Zone. Diamond drill hole AK-03-05 intersected 17.7 g/t Au over 0.5 m (Queenston Mining Inc., press release, June 9, 2003, http://www.queenston.ca/).

GAUTHIER TOWNSHIP AREA

Queenston Mining Inc. diamond drilled 27 holes on a number of zones in the Gauthier Township area during 2003. Holes were drilled on the Anoki South Zone discovered in 2003. The zone is hosted in a 5 to 30 m thick unit of altered inter-flow sedimentary and volcanic rocks that contain a trace of sulphides. Silicified and carbonated zones within this unit contained elevated gold values. Assays ranged up to 7.2 g/t Au over 1.2 m. A deep-penetrating IP geophysical survey was completed over the zone during the first quarter of the year. Thirteen of the holes, totalling 3918 m, were completed on the North Break corridor. This is a zone between the Cadillac-Larder Lake Fault Zone and the North Break, located north of the Anoki and McBean gold deposits. Within the corridor, the 40 East Zone was discovered in 1990. Hole AN-03-35 intersected a zone of green carbonate and carbonated basalt that assayed 0.5 g/t Au over 24.5 m from 22.1 to 46.6 m. An intersection in the same hole, from 241.2 m to 243.9 m down hole, returned 16.8 g/t Au. About 1200 m to the east, 2 diamond drill holes were completed to test for mineralization proximal to the Murphy Shaft, which was sunk in 1928. Diamond drill hole MB-03-30 returned 9.6 g/t Au over 3.1 m (Queenston Mining Inc., press releases, February 5, March 7, June 9, August 28 and November 19, 2003, http://www.queenston.ca/).

St Andrew Goldfields Ltd. – Moneta Porcupine Mines Inc. Options

St Andrew Goldfields Ltd. diamond drilled 562 m on ground optioned from Moneta Porcupine Mines Inc. in Garrison Twp. Hematized ultramafic flows and feldspar porphyry intrusives were intersected. Assay results of porphyry intersections were up to 3.86 g/t Au over 1.0 m and a quartz vein intersection returned 17.64 g/t Au over 0.5 m. St Andrew completed prospecting, linecutting and 33.5 km of IP on a Moneta property in Barnet Twp. (Moneta Porcupine Mines Inc., press release, November 4, 2003, http://www.monetaporcupine.com/).

Sudbury Contact Mines Limited – Timiskaming Property

Sudbury Contact Mines Limited continued to explore for diamonds in the New Liskeard area by continuing the search for new kimberlite pipes and drilling additional holes into known pipes to further evaluate their diamond potential. Exploration on the 95-2 pipe is covered in the "Advanced Exploration" section above.

Five HQ diamond drill holes, totalling 789 m, were completed on the 96-1 pipe in Lundy Township. Seven samples, totalling 155.51 kg of kimberlite for diamond drill hole 96-1/D1 were processed. All samples were barren, except for one, which contained one diamond fragment. Four samples, totalling 68.545 kg of kimberlite from hole 96-1/D4 and 2 samples, totalling 45.23 kg of kimberlite from hole 96-1/D5, were also barren.

Four diamond drill holes were completed on the MR-6 kimberlite pipe in Hudson Twp. Six samples, totalling 139.9 kg, from diamond drill hole MR-6/D2 were processed for diamonds. All samples were barren except one, which yielded one microdiamond.

Twelve road accessible geophysical targets were tested by diamond drilling. Kimberlite was not intersected in any of the targets (Sudbury Contact Mines Limited, press releases, March 7, April 3, May 14 and July 18, 2003, http://www.sudburycontact.com/).

Temex Resources Corp. – Juby Gold Project

In Tyrrell Township, Temex Resources Corp. continued to work on the Juby deposit. A 10-hole, 1963 m diamond drilling program was completed in the spring. This confirmed and expanded at depth the extent of the higher grade core of gold mineralization. During the summer, the company completed a stripping program as well as prospecting and geological mapping. Two new targets defined by coincident soil and IP anomalies were identified. By year end, a further 16 diamond drill holes totalling 4400 m had been completed. Drilling continued to extend to depth the higher-grade gold mineralization and a second higher-grade zone was identified along the Juby Main Zone. The company optioned properties totalling 17 claims along the geological trend of the Juby deposit. In addition, the company bought back 0.85% net smelter return (NSR) on the property, reducing the NSR to 2.00% (Temex Resources Corp., press releases, January 21, May 14, June 16, July 29, October 29 and December 9, 2003, and January 19, 2004, http://www.temexcorp.com/).

Tom Exploration Inc. – Lalonde Property

Tom Exploration Inc. completed a 10 000 foot diamond-drilling program on the Lalonde property in Munro Township. Drilling on the "C Zone Extension" IP target returned assays of up to 4.4 g/t Au over 20 m at a vertical depth of 140 m. The "J" zone was stripped and mapped in late August 2002. Mineralization extended for 180 m and averaged 7.28 g/t Au over 1.5 m. Recent drilling of the zone intersected gold in 7 zones. The best intercept is the third zone that graded 12.2 g/t Au over 4.7 m. Mineralization consists of fine-grained pyrite in a light gray quartz-carbonate alteration zone. IP and one drill hole was completed on the "F" Zone. Further IP was done on this zone (Tom Exploration Inc., press releases, February 17 and 25, 2003, http://www.tomexploration.com/).

Vault Minerals Inc. – Lebel Project

Vault Minerals Inc. diamond drilled 9 holes totalling 640 m on its Lebel Township property. The drilling program was follow-up to a channel sample from a trench that assayed 95.08 g/t Au over 2.7 m, in 2000. The best assay from the drill program was 30.8 g/t Au over 1.3 m (Vault Minerals Inc., press release, January 12, 2004, http://www.vaultminerals.com/).

Wallbridge Mining Company Limited – Ben Nevis Property

Wallbridge Mining Company Limited acquired a base metal property in Ben Nevis Township during 2002. The company completed resistivity and IP surveys and reinterpreted the geology of the property. In 2003, the company completed a 3-hole 2052 m diamond drilling program. Diamond drill hole WBN-003 assayed 2.07 g/t Au, 12.32 g/t Ag and 2.19% Zn over 10.5 m (Wallbridge Mining Co. Ltd., press release, June 25, 2003. http://www.wallbridgemining.com/).

Young-Davidson Mines, Limited – Matachewan Property

In late 2002 and early 2003, Young-Davidson Mines Limited discovered 3 new gold-bearing zones on its Matachewan properties. One zone is located immediately southwest of the Matachewan Consolidated Mine (MCM) No.3 shaft. A drill hole intersection returned 0.106 ounce per ton Au over 114.5 feet. A second zone is perpendicular to the MCM ore horizon and is about 1000 feet east of the MCM No.3 shaft. The best intersection was 0.173 ounce per ton Au over 3.3 feet. A third zone was discovered on the Shirriff claims, about 1000 feet west of the Young-Davidson ore body. The intersection was made at the contact of Timiskaming sedimentary rocks and syenite, below the Huronian Supergroup cover. The intersection graded 2.63 ounce per ton Au over 5 feet (Young-Davidson Mines Limited, press releases, February 25, March 6 and April 8, 2003, http://www.youngdavidson.com/).

Young-Davidson Mines, Limited – Oka Project

In Cairo and Powell townships, Young-Davidson Mines, Limited diamond drilled 34 holes totalling 3566 m on the Oka project, immediately north of the Matachewan property. The company completed detailed ground magnetic and geochemical surveys to follow-up previously encountered gold geochemical anomalies. Numerous zones were diamond drilled with results of 7.99 g/t Au over 1.5 m in hole OK03-25 and 3.33 g/t Au over 10.7 m in hole OK03-15 reported. Young-Davidson can earn an 80% interest in the project from Sedex Mining Corp. by spending $450 000 in exploration over 5 years (Young-Davidson Mines Limited, press releases, November 12 and December 5, 2003, and January 12, 2004, http://www.youngdavidson.com/).

RESIDENT GEOLOGIST STAFF AND ACTIVITIES

At year-end, the staff consisted of G. Meyer, Regional Resident Geologist, G. Grabowski, District Geologist, D. Guindon, District Geologist and E. Chaloux, District Support Geologist. S. Willard, summer experience student, provided client service support and assistance to all staff. F. Boucher, out of the South Porcupine Resident Geologist office, provided backup throughout the year for the RGO and Mining Lands Consultant.

G. Meyer gave an overview on mining and exploration activities in Ontario Northeast at the Ontario Exploration and Geoscience Symposium in Toronto in December 2003, and was actively involved in organizing the Northeastern Ontario Mines and Minerals Symposium in Cobalt and Haileybury in April 2003. He received his professional geoscientist designation from the Association of Professional Geoscientists of Ontario (APGO) in December 2002.

G. Grabowski operated a field office in Cobalt for 4 days per month during the field season from May to October and received his professional geoscientist designation from the APGO in November 2003.

D. Guindon worked in the Tweed office for two weeks during the field season examining industrial mineral and building stone properties, participated on a committee studying enhancements to the MDI database application, received his professional geoscientist designation from the APGO in November 2003 and assisted in organizing the Northeastern Ontario Mines and Minerals Symposium in Cobalt and Haileybury in April 2003.

E. Chaloux provided backup for the Mining Lands Consultant and assisted in organizing the Northeastern Ontario Mines and Minerals Symposium in Cobalt and Haileybury.

RGO staff hosted an information session on the Resident Geologist Program and Mining Lands activities to a Peruvian delegation interested in learning about Ontario's mining system.

Kirkland Lake RGO staff contributed material for the NE Ontario Regional Resident Geologist program display for the PDAC Convention in Toronto in March 2003, the NE Ontario Mines and Minerals Symposium in Haileybury in April and the OPA Symposium in Toronto in December.

Kirkland Lake RGO staff conducted 7 field trips and visited 50 properties (Table 5 and Figure 2) in the Kirkland Lake area. Information sessions were provided for the Northern Prospectors Association and École Secondaire Jean-Vanier students.

Exploration activities in the Kirkland Lake Regional Resident Geologist district were up from the previous year. Please refer to Table 8 for a summary of the year 2003 activities.

PROPERTY EXAMINATIONS

Bear Paw Resources Inc. – Knight Township

Bear Paw Resources Inc. holds 22 contiguous mining claim units in southwest Knight Township. Only limited exploration data is available for the claim group. Graham (1932) mentions trenching by the Nipissing Mining

Company Limited on the eastern claims. Timiskaming Nickel Limited completed an airborne magnetic and electromagnetic survey over the property in 1968. A number of diamond drill holes were completed in the southern portion of the property. An airborne magnetic, electromagnetic and radiometric survey was completed by industry and the Ontario Geological Survey in 1998 (OGS 2000). D. Burda and M. Thurston completed a ground magnetic and VLF-EM survey, and prospecting over much of the property in 1999. Some stripping and trenching and sampling was completed on the property in 2002. Further overburden stripping was completed in the summer of 2003.

Geological mapping, by Ontario Government geologists (Johns 1999 and Carter 1983), indicates that the area is underlain by mafic and ultramafic metavolcanic rocks. To the southeast, the metavolcanic rocks are overlain by Gowganda Formation argillite and arenite sedimentary rocks. Bands of mafic and ultramafic metavolcanic rocks trend at about 160°. In 1974, M.W. Carter (1983) mapped Natal and Knight townships and discovered a showing of chalcopyrite southwest of Brush Lake. This property was visited during the summer of 2003.

The heaviest concentration of chalcopyrite at the Brush Lake showing appears to be associated with a 15 cm white carbonate vein trending at 255° and dipping 50° to the north. Pyrite, chalcopyrite and malachite are disseminated in ultramafic (47% SiO_2), fine-grained metavolcanic rocks. A grab sample of rusty altered rock collected near the vein (NAD27, Zone 17, 5281141N / 496866E) assayed 659 ppb Au and 2.7% Cu. Assays filed for assessment work are up to 2.1% Cu (Kirkland Lake assessment file CO-2900). A few metres south of the vein, the rock is fragmental and unmineralized (<6 ppb Au and 128 ppm Cu). Minor disseminated chalcopyrite in patches of up to 1 cm in diameter occur up to 20 m to the north and another grab sample at this site assayed 152 ppb Au and 0.8% Cu. Further to the north, the unmineralized rock is either fragmental with irregular chloritic patches to tens of cm in diameter or variolitic with varioles up to 0.5 cm in diameter in a chloritic matrix of hyaloclastite. About 120 m southwest of the carbonate vein, fragmental volcanic rocks, possibly dacite (68% SiO_2), are exposed in overburden stripping. Geophysics, as interpreted by the Bear Paw Resources geologist, suggests there may be 4 mineralized zones.

Detailed mapping and sampling of the property is required to gain an understanding of the controls on mineralization. Copper and gold contents are similar to those of an iron oxide-copper-gold (IOCG) deposit and the IOCG model should be given consideration when exploring at the site. Nickel values, in the samples collected, are less than 200 ppm and zinc is less than 500 ppm. Additional studies are required to determine a suitable exploration model for the property.

Hector Gold Occurrence – Bryce Township

L. Gondor and G. Atkins hold a group of 44 claims (57 units) in northwest Bryce Township and the adjoining townships of Robillard, Truax and Tudhope. The Hector Occurrence lies within the claim group on claim L1189221 in lot 10, concession 6, Bryce Township (NTS: 41P09/NE; UTM: NAD27, Zone 17, 566500E / 5288500N; MDI: NEW). The property is located 45 km southwest of Kirkland Lake. An all-weather gravel road, leading west from the Hill Lake Fish Hatchery, reaches the southern portion of the claim group. During the fall of 1997, a portion of the claim group was subjected to logging activities, which conveniently provided access to the area and uncovered the occurrence.

With the help of OPAP grants and options, the claim holders have extensively explored this property since 1989. Previous work done by the claim holders includes prospecting, mapping, airborne and ground geophysics and power stripping. Power stripping in the area of IP anomalies was done using the logger's heavy equipment already on site. One of the areas stripped, along the lineament west of the Mearow Lake Fault, exposed a 2 m wide carbonatized and silicified shear zone containing minor pyrite within massive mafic rocks. Grab samples from this area contain visible gold and return assays up to 2130.7 ppm (62 oz./t) gold. Several other exposures of rusty shears were uncovered lying within the trace of the IP anomalies.

The property description is based on an assessment file report by A.W. Beecham. The Hector area is underlain by a south-facing series of east-northeast-striking mafic flows and gabbro-like rocks. As the contacts of these rocks are conformable with other flow features such as exhalite horizons and other flows, they are thought to be thick flows or

lava lakes. Based on the attitudes of cherty inter-flow sediments, dip of the volcanic sequence here is moderate at 35° to 55° to the south. In this area, the gabbro-like rocks make up a large proportion of the volcanics.

The Hector showing has been mapped for a strike length of about 100 m and is inferred from bedrock topography to extend at least another 100 m to the SW. It varies in thickness from less than 1 m up to 2.5 m thick. The greatest thickness, in the middle of the mapped area, coincides with distinctive red-brown carbonate weathering. The best gold concentrations seem to be associated with the thickest part of the shear. The shear strikes about 045° and dips SE at about 65°. This 045° strike is unusual in the area.

The Hector shear has about 2 m of right-hand strike-slip movement on the steep metadiabase and almost no offset on the south-dipping exhalite bed. This suggests that the movement is normal oblique slip. Although the geometry has not been worked out, the total movement cannot be more than 5 or 10 m. With such limited movement it is understandable why the structure seems to attenuate so abruptly to the NE.

The alteration assemblage within the Hector shear consists of chlorite, calcite, probably some ferroan dolomite and quartz as veins. The veins are brecciated to granulated and vuggy where some of the calcite is leached out. The red-brown carbonate weathering, typical of ferroan dolomite alteration, is present in the shear only in the wide, middle part near the high grade pod where the shear has fairly abundant quartz-calcite veins and where the shear cuts the metadiabase dike. Both to the NE and to the SW, the red-brown weathering is less pronounced or absent. Whether this distribution of red-brown carbonate weathering accurately reflects the ferroan dolomite distribution or is a function of the depth of overburden cover is not known. The red-brown middle part originally had little or no overburden whereas considerable overburden obscured the shear both to the NE and to the SW. The deeper overburden on the ends may have prevented weathering and the development of red-brown iron hydroxides.

Values in the Hector shear zone are related to pyritic, calcitic quartz veins and silicified, veined exhalite. The structure does not seem to be auriferous where it is mainly chloritic schist. However, there has not been enough systematic sampling to determine this. To date, gold has only been found in the structure where it cuts fine-grained pillowed flows. It is thought the shear 'refracted' where it passed from the gabbro-like basalt to the pillowed basalt and further movement resulted in dilation, which formed openings for auriferous hydrothermal solutions. The pillowed flow is unusually pyrite rich at its top contact. Although little pyrite remains in the flow near the shear, the sulphides may have been present before hydrothermal activity and played a role in precipitating the gold within the pillowed flow.

At the SW end of the Hector trench, a NS striking feldspar porphyry dike is exposed. The exposure is only on the southeast side of the excavation, and the dike is not exposed within the bedrock depression which marks the shear. Although only 5 to 10 m wide, this brittle, competent rock could be well mineralized within the shear, and it would be worthwhile extending the exposure. As well, diamond drilling to determine the depth continuity of the zone is recommended.

Onitap Au-W Occurrence – Churchill Township

Roy Annett's gold-scheelite property, located 1 km east of West Shining Tree Lake in Churchill Township, was sampled for gold. The main showing is located at NAD83, Zone 17, 480444E / 5271215N, MDI 41P11SW00013. At this site overburden stripping and several pits expose a strongly carbonatized, sericitized zone with disseminated pyrite and a stockwork of quartz-carbonate veins. The overall strike direction of the shear zone, along which the scheelite-gold mineralized zone occurs, is 136° and the dip is steep to the east. Locally, the zone is deformed with the development of small folds. Six grab samples were assayed and the two best values are 0.04 and 0.08 ounce per ton gold. Similarly altered rock occurs 300 m on strike to the northwest at NAD83, Zone 17, 480265E / 5271439N. A single sample from the site did not contain gold. A review of a geological map by Johns (2000) suggests that the scheelite-gold showings occur in intermediate to mafic metavolcanic rock. The strike of this showing is, more or less, parallel to stratigraphy and the long axis of three small, intermediate to felsic intrusions and a gabbro intrusion 1 to 2 km to the southeast. At two additional sites, silicified mafic to intermediate volcanic rocks occur 500 m south and southeast from the main scheelite-gold showing. Also, several gold showings occur further afield to the southeast in Asquith Township. Tri-Bridge Consolidated Gold Mines Ltd., in diamond drill hole T-2, intersected

30 feet grading 0.022 ounce per ton gold and 55 feet grading 0.052 ounce per ton gold. The hole was drilled approximately 1.3 km south of the scheelite-gold showing in rock logged as gray tuff and carbonate acid tuff with less than 1% pyrite (McCannell 1975).

A quartz vein, up to 30 cm wide in diabase, occurs 200 m to the southeast of the scheelite-gold showing at NAD83, Zone 17, 480526E / 5271016N. The vein strikes at 96° and has a steep dip to the north. Chalcopyrite and pyrite blebs occur in the vein and a selected grab sample assayed 1.36 ounce gold per ton.

The well-developed alteration zone at the scheelite-gold zone, together with anomalous gold values, an auriferous quartz vein and several small felsic and mafic intrusions to the southeast make this area attractive for further exploration. An IP survey and a walking magnetometer survey should be very effective in tracing the scheelite-gold zone containing disseminated sulphides. Further follow-up of overburden stripping and diamond drilling should then be applied on-strike of the showing, coinciding with the most promising IP results. If values remain low, perhaps, a deep hole should be considered to determine if gold mineralization improves with depth.

Duggan Gold Prospect – Knight and Tyrrell Townships

P.A. Rosko holds 3 contiguous claims (8 units) in Knight and Tyrrell townships. Included within the group, on claim L.1242759, is the Duggan gold prospect (NTS: 41P/11NE; UTM: NAD83, Zone 17, 498063E / 5279619N; MDI: 41P11NE00023). The property is located about 20 km west of Gowganda, about 2 km along a bush access road north of Hwy. 560. The Tyranite Mine is located about 2 km to the east.

The property is underlain by Archean ultramafic, mafic and felsic metavolcanic rocks. These rocks are intruded by the Milly Creek Pluton, consisting of medium-grained monzonite, diorite and locally syenite. Diabase dikes cut the ultramafic rocks. To the north, Proterozoic Cobalt Group Gowganda Formation conglomerate and interbedded argillite and sandstone unconformably overly the Archean rocks.

Mineralization is contained within Milly Creek Pluton altered monzonite and diorite near the contact with the metavolcanic rocks. Alteration consists of strong pervasive carbonate and hematite and moderate silica. Quartz and calcite stringers are common throughout the zone. Fragments of mafic and ultramafic volcanic rocks have pervasive chlorite and calcite alteration with trace amounts of disseminated pyrite. Pyrite is the main sulphide mineral, with trace amounts of chalcopyrite and arsenopyrite. Visible gold is present in small amounts throughout the zone. Gold is also found with pyrite and chalcopyrite. Diamond drilling has traced the zone over a strike length of 2000 feet and outlined a series of lenses within a 200-foot-wide deformed and intensely altered section of the Milly Lake Pluton.

Gold mineralization was discovered on the property in the early 1930's. A. Duggan drilled the property in 1938. Little work was recorded on the property until, in 1987, the property was sold to Tyranex Gold Inc. A major exploration program was carried out by Gunnar Gold/Mill City Gold Inc. under an option agreement with Tyranex. Work included geophysical surveys, surface stripping and trenching and diamond drilling. By 1997, extensive drilling and surface sampling had outlined an open pit potential, on the Duggan Zone, of 1 114 000 tons grading 0.07 ounce per ton gold (George Cross Newsletter Ltd., No. 39, February 27,1997).

P.A. Rosko staked the Duggan Zone claim in 2001 and, based on the previous results, applied to remove a 150 ton bulk sample for testing. A small pit was blasted from the southwest part of the zone, however, the higher-grade portion was not reached. Grab samples of mineralized rock from the pit, collected by Kirkland Lake Resident Geologist Office staff, assayed up to 1.61 ounce per ton gold. Power stripping and prospecting, to locate the surface projection of higher grade mineralization, will be done prior to removing the bulk sample. This work is planned for the spring of 2004.

Sudbury Contact Mines Limited 95-2 Kimberlite Pipe – Lundy Township

Sudbury Contact Mines Limited conducted a regional diamond exploration till sampling program between Kirkland Lake and Cobalt in the early 1990's. Airborne and ground magnetic surveys were completed to follow up areas of favourable kimberlite indicator minerals detected in the tills. Eventually, overburden and diamond drilling tested favourable targets. The 95-2 pipe (sometimes referred to as 95-3) was discovered in 1995 in Lundy Township at NAD27, Zone 17, 5263700N / 583440E. It is one of 4 discovered by Sudbury Contact Mines Limited in the immediate area. By the end of 1996, 56 micro and 24 macro diamonds had been recovered from 1244.76 kg of kimberlite recovered from core and reverse-circulation drilling. Sudbury Contact had a diamond exploration hiatus from then until 2002. The company processed core previously drilled and completed further definition drilling on the 95-2 pipe and recovered 301 diamonds from 1711 kg of kimberlite (Sudbury Contact Mines Limited, press release, July 18, 2003).

The kimberlite shows a weak to moderate positive magnetic anomaly that is oval shaped, approximately 350 by 200 m. The kimberlite intrudes Gowganda Formation sedimentary rocks. The pipe is under 30 to 50 m of overburden. Based on diamond drilling prior to the mini-bulk sampling program, the pipe was thought to be 400 m by 75 to 150 m in width at the –200 m level. The kimberlite has been weathered in the upper 20 to 25 m of the pipe. The dominant lithology is tuffisitic kimberlite breccia grading to tuffisitic kimberlite in the western portion of the pipe. The eastern portion of the pipe is dominated by tuffisitic kimberlite breccia that has been diluted by host rock. In the western portion of the pipe, deeper holes have intersected transitional hypabyssal to diatreme kimberlite and pure globular segregationary hypabyssal kimberlite (Kjarsgaard et al. 2003).

A mini-bulk sample of the pipe was collected between the end of October and the beginning of December 2003. Six 24-inch diameter holes were drilled into the kimberlite and 800 wet tonnes of kimberlite were collected for processing. Button tricone bits drill into the rock to 300 m depth. Water and air lift the broken kimberlite to surface. The sample is then passed over a shake table before being packed into 1 t nylon bags. Samples were shipped to SGS Lakefield Research Limited. SGS constructed a 10 t per hour pilot plant to process the material. Two holes in the western portion of the pipe were terminated in kimberlite at 300 m. They were expected to exit kimberlite at about 200 m. Results are expected in the first quarter of 2004 (Sudbury Contact Mines Limited, press release, December 9, 2003).

Wadasa Gold Mines Property – Gauthier Township

A package of documents submitted by G. Sparrow pertaining to the Wadasa Gold Mines property in Gauthier Township, 17 km east of Kirkland Lake, was reviewed together with additional information gleaned from assessment files at the Kirkland Lake Resident Geologist Office. Two property visits were performed along the Upper Beaver access road, which passes through the middle of the property.

The property consists of 15 contiguous, patented mining claims (15 claim units) and adjoins Queenston's Upper Canada Mine property to the west. The western boundary is located approximately 500 m from the Upper Canada's No. 1 shaft and the down plunge of the "L" Zone on the 6150 Level is located, in plan view, approximately 275 m to the northwest of the No. 4 post of Claim L9363.

An assessment work compilation (Ploeger and Grabowski 1979) suggests extensive diamond drilling was performed along the western boundary of the property, some drilling at the center, and no diamond drilling on the eastern half of the property.

Four alteration zones were identified (Stollery 1950) and values of up $17 gold per ton at $ 38.00 per oz was reported in Pit "A", which uncovered a three-foot-wide quartz vein exposed over a length of six feet (McBean 1945). An x-ray diamond drill hole, testing what was referred to as the No. 2 zone, intersected $9 gold per ton. Several other diamond drill holes intersected $1.40 gold per ton over 4 feet, $4.20 gold per ton over 10 inches and $4.20 gold per ton over 16 inches (gold at $35.00 per oz.).

CANICO (K.L. Assessment File 1272) carried out an IP survey on four lines, covering a small area in the northwest corner of the property.

Assessment files at the Kirkland Lake Resident Geologist office suggest that only Queenston Mining Inc. performed work on the property subsequent to the Ploeger and Grabowski (1979) compilation. Overburden stripping by Queenston, over a weak IP anomaly at four sites, did not explain the cause of the anomaly.

Outcrop along the Upper Beaver Road is composed of Timiskaming conglomerate, which is strongly deformed and carbonatized. Pebbles in the Timiskaming sedimentary rocks are flattened parallel to the S3 deformation direction striking north-northwest and dipping near vertical. Flattening and carbonatization are apparently most intense near the southwest boundary of the property, decreasing in intensity at the northeast boundary.

Interlayers of Timiskaming sedimentary rock, and trachyte underlie the northwest part of the property. The remainder of the property is underlain by Timiskaming sedimentary rock (Map No. 50c, Gauthier Township).

Gold deposits in Gauthier Township are associated with mineralogical metasomatic replacement (albitization/silicification) by hydrothermal fluids along S2 structural deformation zones, which are well mineralized with disseminated pyrite. The strike lengths of gold deposits are up to 300 m and, in the case of Queenston's "L" zone, extends down plunge for more than 2000 m.

Queenston's 40 East Zone and Murphy Shaft Zone, within the North Break alteration corridor, are apparently on strike with the southern part of the Wadasa property.

The following exploration programs are recommended for the property:

1. Compilation of all work done on the property and immediate vicinity.

2. Numerous outcrops occur on the property and prospecting and mapping should pay particular attention to S2 deformation features, striking in an easterly direction, and to the intensity of hydrothermal alteration (carbonatization, sericitization, albitization and silicification).

3. IP survey on 100 m spaced lines should be conducted to search for disseminated sulphides.

4. Field follow-up to determine causes of IP anomalies, if any, where bedrock outcrops.

5. Diamond drilling to test overburden-covered IP targets.

RECOMMENDATIONS FOR EXPLORATION

Canagau Property – Ben Nevis Township

Galena was discovered on the property in 1926. Exploration that followed was intermittent with a vertical shaft to 346 feet and three levels developed between 1928 and 1929. In 1936, Canagau Mines Limited was incorporated and the property was further explored and developed (MDI 32D05SE00041). Since then, surface exploration, diamond drilling, geological mapping and geophysics was done. Grunsky (1986) carried out an alteration study of volcanic rocks in the Ben Nevis Township area. Several sodium-depleted zones were identified in volcanic rocks and the Canagau lead-zinc-copper-silver deposit occurs within such an alteration zone. Minnova Inc. subsequently analyzed numerous rock samples (Pearson 1992) and confirmed Grunsky's hydrothermal alteration zone in the Canagau Mine area. Wallbridge Mining Company Limited is at present exploring the area and holds a large land package.

Rhyodacite, mafic volcanic rocks and rhyolite of the Blake River Group and mafic and intermediate intrusions underlie the property. Rhyodacitic, tuff and pyroclastic rocks are strongly carbonatized and sericitized. Foliation developed in the tuff and pyroclastic rocks strikes 120° to 090° and dips 40° to 60° to the south (Jensen 1975).

Mafic volcanic rocks, consisting of massive flows, pillow lava and flow-top breccia, stratigraphically overlie the rhyodacite. The contact between the rhyodacite and mafic volcanic rock strikes approximately 130° near the Canagau mine shaft and tops are to the southwest. The dip is not known. A deep diamond drill hole completed by Wallbridge Mining Company Limited (WBN-003) to the southwest, across the alteration zone, intersected the rhyodacite and mafic volcanic rocks. The last 150 m of the hole intersected rhyolite. A stockwork of dacitic intrusions cut across stratigraphy. The general trend of the dacitic intrusions appears to be to the southwest. Amygdules are common, both in the mafic volcanic flows and dacitic intrusions, suggesting near-surface formation of these rocks under low-pressure conditions.

The hydrothermal alteration zone, characterized by soda depletion, is apparently oval in shape and measures approximately 1200 m by 600 m. The long axis of the alteration zone, which trends to the south, appears to cut diagonally across stratigraphy. Both the rhyodacite and overlying mafic volcanic rocks are hydrothermally altered.

Sheared and fractured zones mineralized with galena, sphalerite, chalcopyrite, gold, silver and pyrite occur, and strike 090° and dip 40° to 60° south. The Main Vein or Shaft Vein at the Canagau Mine strikes 090° and dips 40° south along the contact between diorite to the north and rhyodacite tuff to the south. Surface and underground work indicates that the vein strikes 090° for 120 m and extends to a vertical depth of 99 m. According to Pearson (1992) the main mineralized vein occurs within a mafic dike 50 m to the west of the Canagau shaft. Peloquin and Piercey (2003), who observed sulphide mineralization in veins and stringers within and often parallel to the contacts of the "rhyolitic and "andesitic" synvolcanic dikes, described a similar relationship. It needs to be determined if the dikes are hydrothermally altered or not. If hydrothermally altered, then the mineralization associated with the sheared and fractured zone could have formed as part of an overall hydrothermal VMS mineralizing event. If not, then the mineralizing event associated with the sheared and fractured zones would have post-dated the formation of a VMS deposit. In any event, the spatial relationship of the mineralized zones, confined to the hydrothermal alteration zone, suggests at least a genetic relationship in one form or another.

The stratigraphic top of a VMS style hydrothermal alteration zone is the site where stratabound VMS most often occurs. Within such an alteration zone, occasional stringer sulphides can be expected. It is only in rare instances of stacked deposits that a younger hydrothermal system follows the same general conduits of an earlier one. In such instances hydrothermally altered rocks occur above and below massive sulphides. Examples of stacked deposits are Amulet Lower A and Amulet Upper A as well as some deposits at the Millenbach mine, all near Noranda, Quebec (Knuckey et al 1982). In exploring for a VMS deposit, three aspects are critical and are as follows:

1. Tops of stratigraphy

2. Dip of stratigraphy

3. Stratigraphically highest position of hydrothermal alteration, i.e., "favourable horizon" often associated with a stratabound silica exhalite horizon with disseminated pyrite

At the Canagau Mine site, top determinations on pillowed andesite flows are to the southwest. However, the dip of stratigraphy is not known and is crucial for exploring the possible VMS association with the hydrothermal alteration zone. Three scenarios are considered and are as follows:

1. Flat to moderately steep dipping stratigraphy would suggest that the stratigraphic top of the hydrothermal alteration zone was above the present erosion surface and it would be futile to explore for an associated VMS deposit. It is only if the potential for stacked VMS deposits is considered that one might want to explore the alteration zone to a lower statigraphic level.

2. The steeper the stratigraphy the better the chances for the preservation of the site where a VMS deposit might have formed at the stratigraphic top of the hydrothermal alteration zone.

3. Overturned stratigraphy would be most favourable and the center of a hydrothermal alteration "pipe" could then be projected to the plane of the "favourable" horizon.

Another hydrothermal alteration zone, two to three km to the northwest, seems to terminate at the same stratigraphic horizon as the Canagau alteration zone. This deduction is based on Grunsky's (1986) report and Map 2283 accompanying Jensen's (1975) report. The similarity of the alteration zones on the Ontario side compared with those on the Quebec side, hosted in volcanic rocks similar in age, suggest favourable conditions for VMS formation existed. With the absence of any significant airborne EM responses, the challenge will be to determine the presence of a "favourable" horizon to be explored at depth without the benefit of a near surface massive sulphide deposit. In the Noranda VMS camp a narrow silica exhalite bed defined the "favourable" horizon. This marker horizon, with a width from as little as several tens of centimeters and continuity over a strike length of more than 10 km, was invaluable in the search for "blind" VMS deposits.

Recommendations

1. Increase sample density to more accurately delineate the hydrothermal alteration zones indicated in Grunsky's (1986) report. The purpose is to determine where the hydrothermal alteration zone(s) "top out" to locate the "favourable horizon(s)" for VMS deposits. Also, drill core should be sampled, especially, deep holes and analyzed to determine the third dimension. All data needs to be compiled in 3D.

2. The dip of stratigraphy may very well be a determining factor whether or not to explore for a possible VMS deposit associated with the Canagau hydrothermal alteration zone.

3. Focus future exploration on general vicinity where hydrothermal alteration ceases to continue at the highest stratigraphic location. This is also where detailed geological investigation should be conducted to search for a silica exhalite horizon. If such a marker horizon is located, it could be used as a guide in deep exploration for "blind" VMS deposits, whose associated hydrothermal alteration zone may not even be exposed at surface (situation for several Noranda VMS deposits).

4. Determine if intermediate and mafic intrusions within the hydrothermal alteration zones have been hydrothermally altered. In case these intrusions were impervious to hydrothermal fluids, sampling of the intrusions should be done close to the contacts with the host rocks.

Gold Potential in the Shining Tree Area

Two past gold producers and numerous gold occurrences lie within an area extending westwards from near the center of Tyrrell Township across Macmurchy Township and into the eastern part of Churchill Township. Timiskaming-age sedimentary and alkalic volcanic and intrusive rocks occur, suggesting the presence of deep structural break(s) similar to the Cadillac-Larder Lake and Porcupine-Destor deformation zones. Gold mineralization in Tyrrell Township is confined to at least three favourable deformation directions, which are north-, northeast- and west-northwest-trending.

The Tyranite Mine, located near the northern boundary of Tyrrell Township, operated from 1939 to 1942 and produced 31 352 ounces of gold from 223 810 tons of ore at a recovered grade of 0.14 ounce per ton. Resources at the mine are 526 000 tons grading 0.18 ounce gold per ton (The Northern Miner, June 1993). The Ronda Mine, located in southwest Macmurchy Township, produced 2727 ounces of gold and 4830 ounces of silver from 24 592 tons of ore milled at the Tyranite Mine in 1939.

Exploration activities by several exploration companies and prospectors have encountered encouraging results. Some of these are as follows:

1. Temex Resources Corp. is defining the potential for a large tonnage, low-grade gold deposit with a higher-grade core at their Juby gold project, Tyrrell Township. The higher-grade core has a strike length of more than 300 m. A low-grade zone envelops this zone with a strike length exceeding 2.4 km (Ian Campbell, personal communication, 2004) and a width of up to 60 m. The zone has been tested to a vertical depth exceeding 200 m. Mineralization occurs within the Tyrrell Structural Zone, strikes west-northwest, dips steeply to the north and is hosted in altered Timiskaming sedimentary rocks. On section 0+50W, five angle holes intersected the zone at, more or less, regular

intervals from near surface to a vertical depth of more than 200 m. Each hole intersected the wide gold-mineralized zone with a higher-grade core. As an example, diamond drill hole JU 02-01 intersected 1.31 g/t Au over 72.95 m including 5.04 g/t Au over 14.22 m (true width approximately 12 m). A resource calculation, prior to the latest diamond drill program, was 2 200 000 t grading 4.65 g/t Au (Goldeye Explorations Limited, press release, September 18, 2002).

2. Further to the west-northwest, along the same deformation zone, Goldeye Explorations Limited discovered four gold zones, which require further exploration. One of these, the LaCarte zone, was reported to contain a resource of 600 000 t grading 6 g/t Au (Goldeye Explorations Limited, press release, November 05, 2002).

3. The Duggan zone, consisting of several closely spaced, north-striking mineralized zones, 1.5 km west of the Tyranite Mine in Knight Township, has a minimum open pit potential of 1 114 000 tons grading 0.07 ounce per ton (George Cross Newsletter Ltd., No 39, February 25, 1997). Of several surface samples collected by Ministry of Northern Development and Mines staff, four assayed 0.29, 0.30, 0.71 and 1.61 ounce per ton Au.

4. The Gordon Lake deposit in Tyrrell Township, owned by Duncan Gold Resources Inc. – Dalhousie Oil Company Ltd., has a reported resource of 225 000 tons of 0.20 ounce per ton Au to a depth of 750 feet, based on air track drilling (Pearson 1984).

5. Further to the west, International KRL Resources Corp. explored the Golden Sylvia Iron Formation Gold Zone and the Jude Zone (formerly 30-31 Zone) in Macmurchy Township. Intersections at the Iron Formation Zone include 21.05 g/t Au over 0.4 m, 5.13 g/t Au over 2.5 m, 2.55 g/t Au over 14.23 m and 1.47 g/t Au over 18.65 m. The best intersection at the Jude Zone is 1.88 g/t Au over 10.95 m. (International KRL Resources Corp., press releases, September 2001, March 3, April 16 and December 1, 2003).

Even though the geology in the Shining Tree area is similar to the Timmins and Kirkland Lake areas, it was never subjected to the same intensity of exploration activity. Recent results clearly demonstrate the potential for significant gold deposits to occur in the Shining Tree area.

Larder Lake - Cadillac Break West of Matachewan

The relationship between major structures and gold deposits in the Abitibi greenstone belt has been well documented and studied over the last century. The two most prolific and well known "breaks" (also referred to as fault zones or deformation zones) are the Porcupine-Destor (PDFZ) and Larder Lake-Cadillac (LLCB). Trending in a general east-west direction for more than 450 km through the south-central portion of the Abitibi greenstone belt, these two "breaks" have accounted for more than 65% of the historical production of gold in Canada or more than 140 million ounces (>4000 t) worth about C$75 billion (based on C$530/oz). Major mining camps include Timmins, Kirkland Lake, Larder Lake and Matachewan in Ontario as well as Val d'Or, Malartic and Rouyn-Noranda in Quebec.

An interesting feature is the parabolic nature of portions of these "breaks", which can be illustrated by digital magnetic data available in Geosoft® format and viewed with the freeware viewer OASIS montaj™ (OGS 2003a). The PDFZ (Figure 4(a)) exhibits this parabolic character from Beatty to Garrison townships for a distance of about 30 km and a south "displacement" of about 8 km. The LLCB (Figure 4(b)) follows a similar shaped path from Lebel to McGarry townships for a distance of about 30 km and a south "displacement" of about 6 km. Coincidence?

The LLCB has been confidently traced as far west as Matachewan (Young Davidson and Matachewan Consolidated Mines) where it becomes covered by Proterozoic Huronian Supergroup sedimentary rocks. Traditionally, from Matachewan, the break is considered to follow a southwest trace toward Midlothian Township, or farther south toward Shining Tree. The magnetic pattern shown in figure 4(c) suggests that there is a similar parabolic trace of the LLCB, which would bring the break in a northwest direction toward Hincks Township. The distance is about 30 km long by about 8 km deep, almost an identical image of the above two examples. There are more than twelve gold showings along this trend, the most important being the Ashley Mine in Bannockburn Township. Some of these showings are associated with altered ultramafic rocks (green carbonate), a common feature of the PDFZ and LLCB.

The Operation Treasure Hunt magnetic survey was not available when mapping was done and the striking similarity with the other portions of the breaks may support the hypothesis that the LLCB trends northwest from Matachewan.

Many gold occurrences are also associated with splay faults or structures that emanate in various directions from these breaks. The Pipestone, Munro, Arrow, Ghostmount and McKenna faults are some of the more important PDFZ splays, while the Kirkland Lake, Upper Canada and Benson Creek faults are associated with the LLCB. Similar splay structures are also seen in the magnetic pattern west of Matachewan. Mapping by L.S. Jensen (1996) interprets one of these trends west of Matachewan to be the Galer Lake branch of the LLCB.

Exploration efforts, using deposit models based on those found within the PDFZ and LLCB, should be carried out within this relatively unexplored area.

Kimberlite Targets Northeast of Kirkland Lake

Recent digital magnetic data is available in Geosoft® format for a large portion of the Kirkland Lake Resident Geologist district. It can be viewed with the freeware viewer OASIS montaj™. The most recent survey, Kidd-Munro, Blake River MEGATEM® II (OGS 2003a), covers most of the kimberlite pipes to the north and east of Kirkland Lake. Results of the Kirkland Lake Treasure Hunt (OGS 2003b) survey are to the south. Figure 3 shows a portion of the 2 surveys as a shaded magnetic image at a scale of about 1:275 000. The known kimberlite pipes are located within rectangles and named for ease of identification. Diamond shapes indicate locations of kimberlite float or kimberlite indicator minerals (KIM) identified by McClenaghan et al. (1993) from operation Black River-Matheson (BRiM) and Kirkland Lake Initiative Program (KLIP) roto-sonic drilling, reverse-circulation drilling or backhoe sample sites. Sample sites without kimberlite float or indicator minerals are not plotted.

The known kimberlite pipes tend to have a positive magnetic signature and appear as subtle circular features within the generally magnetically flat Blake River tectonic assemblage. In the New Liskeard area, some of the pipes have a negative magnetic signature. The magnetic signature of the AM47 pipe is barely visible at this scale. A few northwest-trending strong linear features are visible and are likely diabase dikes. These dikes may have been intruded along structures related to the Lake Timiskaming structural zone. More subtle south-trending features are evident, such as one passing through Esker Lakes Provincial Park and continuing through the cluster of pipes immediately south of the park.

A review of the assessment files may indicate if specific circular magnetic high features have been drilled or explored. Some of these features may be considered to have a higher potential due to KIMs to the south or in a down-ice direction. McVittie, McGarry, Katrine, Ossian, Ben Nevis (north of Katrine), Pontiac (north of Ossian), the south half of Tannahill (west of Dokis) and the south half of Dokis townships were not sampled according to McClenaghan et al. (1993). The two symbols in McGarry Township are kimberlite float, KIMs and diamonds found in till as reported in Kirkland Lake assessment file KL-1812. Three magnetic features lie to the north in McGarry Township and have not been drill tested. A magnetic feature to the south of the Diamond Lake pipes has not been drill tested. Two magnetic features are evident in the northwest part of Clifford Township with KIMs found in reverse-circulation drilling to the south. A search of the assessment files indicates a diamond drill hole penetrated an area north of the feature outside of the park. Present rules do not allow exploration within the park where the other feature is located.

Interlayering of iron-rich and magnesium-rich tholeiitic rocks of the Kinojevis tectonic assemblage are the cause of the alternating magnetic high and low bands northwest of the Esker Lakes Provincial Park. Kimberlite pipes in Michaud and Guibord townships (to the north of Figure 3) are also found in the Kinojevis assemblage. These pipes may be recognisable as circular magnetic-high features but the surrounding banding makes them more subtle than within the Blake River assemblage.

Circular magnetic-high features are easily identified using the digital data available. A review of the assessment files and geological maps available at the Kirkland Lake Resident Geologist office will provide data to explain some of the features. Follow-up with prospecting, a ground magnetic survey and Mobile Metal Ion (MMI) sample geochemical surveys will be useful to provide additional data prior to drill testing unexplained features.

Potential for further Gold Discoveries in the Gauthier Group of Volcanic Rocks

The Gauthier Group of calc-alkalic volcanic rocks, located east of Kirkland Lake, has a strike length of approximately 16 km and a width of 2.5 km and stretches from Lebel Township in the west to McVittie Township in the east. The trend of the volcanic rocks is east-southeast and an anticlinal axis is interpreted down the middle of the group (Map P.3425 – Ayer and Trowell 2000). Kinojevis magnesium- and iron-rich tholeiite are the north-bounding volcanic rocks and Timiskaming sediments occur to the south. A low magnetic signature characterizes the Gauthier Group of volcanic rocks on airborne surveys. Within the magnetic low, two sets of discrete magnetic features, trending to the east and southeast, can be recognized on digital magnetic shadow maps (Figure 5 and OGS 2003a). Several EM airborne conductors occur within the Gauthier Group of volcanic rocks. Lac Minerals (assessment file – KL-1530) carried out ground follow-up and those conductors tested by diamond drilling were due to graphitic shale. The age relationship of the Gauthier Group of volcanic rocks is unresolved. Age dating for it and similar rocks of the Blake River and Skead groups of volcanic rocks is ~2.7 Ga. The Gauthier Group of volcanic rocks is stratigraphically overlain by the Kinojevis Group of volcanic rocks, which is overlain by the Blake River Group, indicating an older age for the Gauthier Group.

In 1993, Sudbury Contact Mines Limited discovered the Victoria Creek gold deposit in the northwest corner of Gauthier Township, within the Gauthier Group of volcanic rocks (Figure 5). One hundred and two (102) surface diamond drill holes were completed by 1995 and an inferred resource of 5.5 million tons grading 0.10 ounce per ton calculated (Meyer et al. 1999). Gold mineralization occurs in several parallel zones, which strike at an azimuth of approximately 260° and dip 67° north. The discovery greatly increased the potential for further gold discoveries in the Gauthier Group. These volcanic rocks, consisting mostly of tuff and pyroclastic volcanic rocks, have been strongly deformed, mainly along S2 shear planes. The shear zone is intensely carbonatized and sericitized (Meyer et al. 1999).

The Upper Beaver Mine (past producer) is located 7 km east of the Victoria Creek deposit and occurs mainly in mafic volcanic rocks, presumably at the base of the Kinojevis Group of magnesium- and iron-rich volcanic rocks (Figure 5). The Upper Beaver Mine is unusual for the Kirkland Lake Gold Camp in that it was a copper-gold deposit. The mine produced 11 955 529 lbs. of copper and 140 709 ounces of gold from 580 562 tons of ore (Gordon et al. 1979).

An exceptionally strongly carbonatized (iron carbonate) and sericitized zone of tuff and pyroclastic volcanic rocks occurs centered on the Kidston property located approximately 2 km southeast of the Victoria Creek deposit (Meyer et al. 1993). This alteration zone occurs near the middle of the Gauthier Group of volcanic rocks and is likely not on strike with it (Figure 5). Occurring both near the northeastern corner and near the southern boundary of the Kidston property, "rhyolite" was intersected in several diamond drill holes (assessment files KL-2112 and KL-2628). With the close proximity to the strong carbonate-sericite alteration zone, it is conceivable that this rock may actually be silicified and/or albitized intermediate volcanic rock. This concept needs to be explored further, as it may have implications for significant gold mineralization. The intermittently exposed or drill-intersected alteration zone at the Kidston property, including "rhyolite", has a width of more than 500 m.

An IP survey and follow-up diamond drilling on the DKO property, approximately 1 km east of the Kidston property (Figure 5) defined at least seven hydrothermal alteration zones varying in true width from 2.5 to 85 m. Alteration is characterized by the development of intense sericite, carbonate, silica and potassic metasomatism (Baker et al. 1995).

Hydrothermal alteration zones, on and in the general area of the Kidston property, are reminiscent of alteration zones closely associated with the Holloway Mine orebodies, 45 km to the north-northeast. At the Holloway Mine, several strongly sericitized and carbonatized alteration zones appear to be associated with gold deposits, which do not come to surface. The Gauthier Group of volcanic rocks is covered extensively by the Munro Esker and associated outwash sand and gravel. Limited exposure has been an impediment to traditional prospecting and exploration. The area stands out as having exceptional potential for further discoveries.

The VMS-gold mineralized deposits at Agnico Eagle Mines Limited's LaRonde Mine in Quebec occur in calc-alkalic volcanic rocks of the Blake River Group close to the Larder Lake-Cadillac deformation zone. The Gauthier Group of calc-alkalic volcanic rocks is only a few km to the north of this deformation zone. In addition, the presence of possible "rhyolite" and copper-gold mineralization at the Upper Beaver Mine suggest that the potential for gold-bearing VMS deposits should also be considered.

OGS ACTIVITIES AND RESEARCH BY OTHERS

A number of Ontario Geological Survey and Discover Abitibi Initiative mapping and research projects were underway or completed in the Kirkland Lake District. Details of the projects are reported in Summary of Field Work and Other Activities 2003 (Baker et al. 2003).

Discover Abitibi Initiative

Discover Abitibi released airborne geophysical MEGATEM® II surveys for the Kidd-Munro, Blake River area and Halliday Dome area.

A.K. Burt and S.M. Hamilton undertook a study comparing selective leach signatures over kimberlites, carbonatites, false anomalies and blind targets (Baker et al. 2003).

V. Ispolatov, B. Lafrance and B. Dube started a two-year project to better understand the regional geologic controls on gold mineralization along the Kirkland Lake "main break" and the Larder-Cadillac deformation zone. The project commenced in 2003 with 1:10 000 scale geologic mapping of a 26 km^2 area in Gauthier Township, west of the town of Larder Lake and north of Hwy 66 (Baker et al. 2003).

A.S. Peloquin and S.J. Piercey (2003) commenced a study of the stratigraphy hosting VMS mineralization and sub-volcanic intrusions in Ben Nevis and Clifford townships. As part of the study, samples were acquired for geochronology and lithogeochemistry from both intrusive and extrusive facies of the assemblage. A reconnaissance section of the stratigraphy in Katrine Township will also be completed.

P.H. Thompson is conducting a metamorphic study of volcano-sedimentary rock units and related intrusions in the Abitibi greenstone belt to differentiate between belt-scale metamorphic zones and smaller-scale "hot' and "cold" spots with steep metamorphic gradients. The purpose of this study is to identify areas where anomalously high heat and/or fluid flow may have occurred to identify new gold exploration targets (Baker et al. 2003).

Ontario Geological Survey (OGS)

The Abitibi compilation project produced hard copy and digital versions of the Timmins, Kirkland Lake, Swayze and Matachewan map areas at a scale of 1 to 100 000. The Matachewan map was released this year (Ayer et al. 2003) and the other map areas were released from 1998 to 2002. A compilation sheet, at a scale of 1:250 000 covering all of the above areas, is planned for release in 2004 (Ayer 2003).

As part of Operation Treasure Hunt, the OGS purchased and released airborne magnetic and electromagnetic maps and digital data covering the Kenabeek-Latchford-Redwater areas.

G.W. Johns performed reconnaissance mapping of 12 townships south of Shining Tree comprised of Garibaldi, Sheard, Ogilvie, North Williams, Moffat, Amyot, Browning, Dufferin, Beulah, Hodgetts, Unwin and Stull (Baker et al. 2003).

B.R. Berger and L. Pigeon mapped Eby and Otto townships at a scale of 1:20 000 during the 2003 field season as part of a multi-year project covering seven townships west of Kirkland Lake (Baker et al. 2003).

J.L. Reid conducted a regional modern alluvium sampling survey to obtain information concerning the types and distribution of kimberlite indicator minerals in the Kirkland Lake-Matachewan region. This study is an extension of stream sediment sampling to further evaluate the diamond potential of the Mattawa to Timmins corridor (Baker et al. 2003).

J.A. Ayer, R.V. Conceição, J.W.F. Ketchum, R.P. Sage, L. Semenyna and D.A. Wyman released the results on research of the timing and petrogenesis of diamondiferous lamprophyres in the Michipicoten and Abitibi greenstone belts (Baker et al. 2003).

University of Western Ontario

R. Fleming and D. McThedran commenced a study on Adams Mine waste rock material used as aggregate in concrete. The Englehart River bridge, on Hwy 66, was built using cherty aggregate from the Adams Mine waste rock stockpiles. It is now recognized as a structure affected by alkali-silica reactivity (ASR). This reactivity is a deleterious expansive reaction that can occur between reactive aggregates and the alkalis contained in concrete pore solution. Material from the source stockpiles was sampled for use in a laboratory study currently underway at the University of Western Ontario. The goal is to identify rapid screening methods for discriminating between reactive and non-reactive concrete aggregates.

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Table 1. Summary of claims recorded and assessment work credits filed in the Larder Lake Mining Division - 2003.

Year	Claims Units Recorded	Claim Units Cancelled	Claims Units Active	Total ($)
2003	6963	6249	28 983	4 895 030
2002	7097	5861	21 940	3 839 275
2001	4308	6229	20 712	2 888 711
2000	4506	9821	22 633	4 532 745
1999	4042	11 603	27 767	11 119 663

Table 2. Mine production and reserves in the Kirkland Lake Regional Resident Geologist's District - 2003.

Mine	Production to end of 2003		Production in 2003		Reserves at end of 2003	
	Tonnage @ Grade	Total Commodity	Tonnage @ Grade	Total Commodity	Tonnage	Grade
Extender Minerals - North Williams	N/A	N/A	99% barite	12 000 t barite	More than 4 years	99% barite
Holloway Mine	4 164 401 tons @ 0.169 ounce per ton Au	703 748 ounce Au	600 610 tons @ 0.132 ounce per ton Au	79 031 ounce Au	Proven 855 280 t Prob. 1 038 937 t Meas. 46 000 t Ind. 523 000 t Infer. 707 000 t	5.96 g/t Au 6.79 g/t 4.17 g/t 5.34 g/t 7.25 g/t
Holt-McDermott Mine	7 784 999 tons @ 0.163 ounce per ton Au	1 267 754 ounce Au	506 905 tons @ 0.177 ounce per ton Au	89 515 ounce Au	Proven 27 778 t Prob. 280 216 t Ind. 410 490 t Infer. 120 233 t	5.21 g/t Au 5.54 g/t 6.66 g/t 9.25 g/t
Kirkland Lake Gold Inc.*	75 707 tons @ 0.325 ounce Au per ton	24 589 ounce Au	10 862 tons @ 1.090 ounce per ton Au	11 845 ounce Au	Proven 432 400 T Prob. 368 400 T Meas. 876 000 T Ind. 2 192 000 T Infer. 449 000 T	0.41 ounce/T Au 0.49 ounce/T 0.38 ounce/T 0.28 ounce/T 0.31 ounce/T

** Kirkland Lake Gold Inc. include the Wright Hargreaves, Lake Shore, Teck Hughes, Kirkland Lake and Macassa properties.*
N/A – data not available.

Table 3. Assessment files received in the Kirkland Lake Regional Resident Geologist's District in 2003.

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARa ..... Airborne radiometric survey
AVLF-EM ..... Airborne Very Low Frequency EM survey
Beep ..... Beep mat survey
Bulk ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
Gc ..... Geochemical survey
GL ..... Geological survey
Ind ..... Industrial Mineral Study
KIM ..... Micro-Diamond Processing
M ..... Ground magnetic survey
Gv ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
IP ..... Induced polarization survey
Lc ..... Linecutting
Other ..... Other study
OvD ..... Overburden drill hole(s)
PEM ..... Pulse electromagnetic survey
PGM ..... Platinum group metals
Pr ..... Prospecting
PW ..... Physical work
RE ..... Re-evaluation of surveys
R ..... Resistivity survey
rTr ..... Trenching
SA ..... Sampling (other than bulk)
sTr ..... Stripping
VLEM ..... Vertical loop electromagnetic survey
VLF-EM ..... Very low frequency electromagnetic survey
Ug ..... Underground work

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Alma, Flavelle, Holmes	Dufresne, R.J./Chartre, D.	2002	sTr, rTr	2.25020	KL-5164
Argyle, Bannockburn, Hincks, Montrose	Phoenix Matachewan Mines Inc. "Argyle Property"	2002-2003 (1)	Pr, SA, GL	2.24433, 2.26540	KL-5168, KL-5245
Arnold	Golden Valley Mines Ltd. "Broker's Fee Prospect"	2003 (2)	DD(3)(379m), SA, Lc, IP	2.26027	KL-5228
Arnold, Gauthier, Lebel	Sudbury Contact Mines Ltd. "Victoria Creek Project"	1998	DD(45)(10 599m), Ug, SA	Donation	KL-5231
Askin, Burnaby, Coleman, Eldridge, Firstbrook, Hartle, Hebert, Kittson, Lundy, Milne, Riddell	Tres-Or Resources Ltd. "Temagami Project"	2002-2003 (3)	Lc, M, VLF-EM, RE, rTr	2.25141, 2.25659, 2.25722, 2.26648	CO-2848, CO-2849, CO-2850, CO-2851
Askin, Gooderham, Hammel, Hebert, Joan, Riddell	JML Resources Ltd. "Marten River Diamond Property"	2002	AM, DD(6)(609m)	2.23633, 2.25092	CO-2852, CO-2853
Asquith	Annett, R. "Holding Mine Property"	2003 (4)	sTr, rTr, SA	2.25402	CO-2854
Asquith	Peters, L.	N/A	Pr	Donation	CO-2855
Asquith, Churchill	Skead Holdings Ltd. "Beilby Lake Property"	2001-2002	GL, Pr, SA	2.24562, 2.24522, 2.24589	CO-2856, CO-2857, CO-2858
Auld, Barr, Cane, Coleman, Firstbrook, Henwood, Hudson, Lundy	Sudbury Contact Mines Limited "Timiskaming Diamond Project"	2002-2003 (5)	AM, M, DD(12)(1192m)	2.26150, 2.25831, 2.24657, 2.25932, 2.25914	CO-2859, CO-2860, CO-2861, CO-2862, CO-2863

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Baden	Honsberger, J.C. "18 Leased Claim Group"	1960-1964	RE	Donation	KL-5156
Baden	Rosko, P.A.	2002	rTr	2.24076	KL-5145
Banting	Comstock, R.	2002-2003 (6)	Pr	2.26131	CO-2864
Barnet, Guibord, Michaud	Acrex Ventures Inc./Moneta Porcupine Mines Inc.	2002	DD(9)(3039m), SA	2.24720	KL-5148
Barr, Klock	Chitaroni, G.P. "Mattawapika Property"	2002	DD(6)(464m), SA	2.24663	CO-2865
Beatty	Canadian Royalties Inc. "Highway Prospect"	2003 (7)	Lc, IP, M	2.25765	KL-5195
Beatty	Gervais, L.N. "Leach Lake Property"	2003 (8)	Lc, HLEM	2.25070	KL-5173
Beatty	Placer Dome (CLA) Limited "Beatty 3 Property"	2003 (9)	Pr, SA	2.26024, 2.26193	KL-5233, KL-5242
Ben Nevis	Wallbridge Mining Company Limited	2002-2003 (10)	Gc, Lc, IP, R, GL, RE	2.24595, 2.25205, 2.24872	KL-5183, KL-5205, KL-5236
Bernhardt	Golden Valley Mines Ltd. "Amikougami Prospect"	2003 (11)	IP, Lc, M	2.25382	KL-5187
Black	McRae, D.H.	2001	sTr	2.25769	KL-5222
Bonis	Seal River Explorations Limited "Departure Creek Property"	2002-2003 (12)	Lc, M, VLF-EM	2.24750, 2.26042	KL-5170, KL-5216
Bowyer, Galna, Marathon, Moody	Boulder Mining Corporation "West Lake Abitibi Property"	2002	OvD(16)(696m), SA	2.24342	KL-5166
Bucke	Cabo Mining Corp. "North Cobalt Property"	2002-2003 (13)	Pr, GL	2.26226, 2.25887	CO-2866, CO-2867
Bucke, Lundy	Tres-Or Resources Ltd. "Temagami North Property"	2001-2003 (14)	M, VLF-EM, SA, Pr, KIM	2.25180, 2.26232, 2.25011, 2.25036	CO-2868, CO-2869, CO-2870, CO-2871
Burrows	Swain, S.L.	2003 (15)	Pr, SA	2.26533	CO-2872
Burt	Bastarache, G.	2002	Pr, SA, sTr, rTr	2.24686	KL-5147
Burt	Winteroad Mineral Corporation	2002-2003 (16)	DD(2)(780m), SA, Lc, IP	2.25948, 2.26040	KL-5213, KL-5217
Cairo	Kiernicki, F.S. "Matachewan Property"	2003 (17)	Lc, IP, AM, AEM	2.25581	KL-5191
Carr	St Andrew Goldfields Ltd.	2003 (18)	Lc, M	2.25331	KL-5188
Catharine	Hawk Precious Minerals Inc.	2002-2003 (19)	Lc, M	2.26056	KL-5226
Catharine	Katrine Exploration and Development Inc. "Misema Property"	2002	rTr, SA	2.24698	KL-5146
Catharine	Salo, A.J.	2003 (20)	RE, SA, Pr	2.25838, 2.26796	KL-5206, KL-5258

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Catharine, Pacaud	Golden Valley Mines Ltd. "Mindoka Prospect"	2003 (21)	Lc, M, IP	2.26052	KL-5230
Chambers	Chitaroni, G.P./Laronde, D.D. "Voyageur and O'Connor Claims"	2002	Lc, M	2.24708	CO-2873
Chesney Bay, Galna, Purvis, Steele, Sulphur Island	Queenston Mining Inc. "Lake Abitibi Project"	2002-2003 (22)	DD(10)(3635m), SA, M	2.24875, 2.26691	KL-5162, KL-5251
Churchill, Kelvin, Knight, Leonard, Macmurchy, Natal, Tyrrell	International KRL Resources Corp. "Copper Hill Property"	2002-2003 (23)	IP, R, Lc, M, RE, VLF-EM, sTr, Gc, SA, Pr, GL, DD(15)(2609m)	2.24753, 2.24781, 2.25733, 2.26666, 2.25299, 2.25311, 2.25617, 2.25223	CO-2874, CO-2875, CO-2876, CO-2877, CO-2878, CO-2879, CO-2880, CO-2881
Churchill, Ogilvie	Hinzer, J. "Hinzer, Dirks, Dirks Property"	2002-2003 (24)	Lc, GL, SA, Pr	2.24869, 2.26689	CO-2882, CO-2883
Cleaver	Flinsky, W.A.	2001-2002	sTr, rTr, SA, Pr	2.25136	KL-5192
Clifford	Harrington, M.S. "C-14 Property"	2003 (25)	Lc, M	2.26522	KL-5244
Coleman, Gillies Limit, Lorrain, South Lorrain	Cabo Mining Corp. "Cobalt Area Property"	2002-2003 (26)	GL, KIM, sTr, SA, DD(8)(651m)	2.26048, 2.25856, 2.25320, 2.24740, 2.25882, 2.26686, 2.26411, 2.24617, 2.26132, 2.26687	CO-2884, CO-2885, CO-2886, CO-2887, CO-2888, CO-2889, CO-2890, CO-2891, CO-2892, CO-2893
Davidson, Flavelle	Kiernicki, F.S./Fekete, M.	2002	Lc, M	2.24865	KL-5158
Dokis, Tannahill	Marion, E. / Carreau, A. "Malamute Property"	2000-2002	DD(1)(259m)	2.23097	KL-5144
Dufferin, North Williams	Mustang Minerals Corp. "McAra Lake Project"	2002-2003 (27)	DD(11)(1338m), GL, SA, Lc, M, IP, HLEM, R, sTr, rTr	2.25921, 2.25609, 2.24454	CO-2894, CO-2895, CO-2896
Dunmore, Michie, Nordica, Sheba, Terry, Truax	Kiernicki, F.S./Fekete, M.	2002	Lc, M, Gc	2.24797, 2.24818, 2.24771	KL-5154, KL-5155, KL-5176
Dunmore, Terry	Kirkland Lake Rocks Ltd.	2001-2002	Pr	2.25884	KL-5237
Eby, Otto	Marion, E.J. "Plinky Property"	2002-2003 (28)	DD(4)(67m), SA	2.25742, 2.26149	KL-5194, KL-5255
Elliott	The Perron Gold Corporation "Iris Property"	2003 (29)	Lc, M, VLF-EM	2.24940, 2.24902, 2.25010, 2.25045, 2.25124, 2.25071, 2.25150, 2.25290, 2.25276, 2.25226, 2.25679, 2.25920, 2.25583, 2.25333, 2.26014, 2.26446, 2.26486, 2.26741	KL-5159, KL-5160, KL-5165, KL-5167, KL-5171, KL-5174, KL-5179, KL-5181, KL-5182, KL-5184, KL-5204, KL-5210, KL-5211, KL-5212, KL-5220, KL-5239, KL-5241, KL-5250
Farr	Dufresne, R.J.	2002	DD(24)(15m), SA	2.25578	CO-2897
Garrison	Moneta Porcupine Mines Inc. "Garrison T10 Prospect"	2003 (30)	DD(1)(284m)	2.25550	KL-5189
Garrison	O'Connor, T.A.	2002	rTr	2.24787	KL-5153

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Garrison, Guibord	Kinross Gold Corporation "Kinross-Coniagas JV Property"	2003 (31)	DD(4)(1064m), GL	2.25234, 2.25564	KL-5180, KL-5190
Gauthier	Egg, H. "Misema River Property"	2003 (32)	Gc	2.26011	KL-5219
Gauthier	Egg, H. "Moose Crossing Property"	2003 (33)	Gc	2.26012	KL-5218
Gauthier	Tiger Gold Exploration Corporation "Northland Group"	2003 (34)	Lc, M, VLF-EM	2.26299	KL-5234
Gauthier, Hearst, McElroy, McVittie, Skead	Skead Holdings Ltd.	2001-2003 (35)	RE, SA	2.24794, 2.25992	KL-5178, KL-5224
Gillies Limit	Watts, H.A.	2002	RTr	2.25279	CO-2898
Guibord	Gervais, L.N.	2003 (36)	Lc, M, HLEM, VLF-EM	2.25251, 2.25707	KL-5177, KL-5196
Guibord	Royal Victoria Minerals Ltd. "Ross East Prospect"	2003 (37)	DD(2)(490m)	2.25245	KL-5175
Hearst	Brigadier Gold Limited	2002-2003 (38)	DD(3)(604m), SA	2.26385	KL-5246
Holloway	Tiger Gold Exploration Corporation "H and L Group"	2002-2003 (39)	Lc, M, VLF-EM	2.24709, 2.24741, 2.24783, 2.26656, 2.26690, 2.26806	KL-5149, KL-5150, KL-5152, KL-5248, KL-5253, KL-5256
Holloway, Tannahill	Sheldon-Larder Mines Limited "Magusi Property"	2001-2002	SA, Gc	2.26538	KL-5259
Holmes	Cunningham, L.J.	2003 (40)	sTr	2.26665	KL-5254
Holmes	Kiernicki, F.S./Fekete, M. "Holmes 11 Property"	2002	Lc, M	2.24772	KL-5151
Hudson	Grant Forest Products Corp.	2003 (41)	Lc, Gc	2.26077	CO-2899
Katrine, Ossian	Katrine Exploration and Development Inc. "Walsh Mine Project"	2001-2003 (42)	Pr, SA	2.25752, 2.25811	KL-5197, KL-5214
Knight	Burda, D.F.	2002	Pr, rTr, sTr	2.24280	CO-2900
Knight	Rosko, P.A.	2002-2003 (43)	Bulk	2.25732	CO-2901
Lawson	Skead Holdings Ltd.	2002-2003 (44)	RE, SA	2.26603	CO-2902
Lebel	Kirkland Lake Gold Inc. "Glenora Property"	2003 (45)	DD(1)(248m)	2.26715	KL-5252
Lorrain	Legault, G.E.	2002	DD(1)(8m)	2.26574	CO-2903
Macmurchy	Annett, R. "McIntyre-MacDonald Property"	2002	Lc, sTr, rTr, SA, GL	2.25403	CO-2904
Macmurchy	Practical Exploration and Development Corp. "Caswell Property"	2001	rTr, SA	2.24607	CO-2905
Marriott	Inmet Mining Corporation "Hebecourt Project"	2003 (46)	EM	2.25972	KL-5221

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Marriott	Plato Gold Corp.	2002-2003 (46)	RE, SA, Gc	2.25009	KL-5163
McGarry	Cascadia International Resources Inc.	2003 (47)	DD(1)(618m), SA	2.26659	KL-5249
McGarry	Salo, A.J.	2002-2003 (48)	SA, Gc, Pr, Lc, VLF-EM, RE	2.25472, 2.25468, 2.25805, 2.25841, 2.26041, 2.26163, 2.26818	KL-5185, KL-5186, KL-5201, KL-5207, KL-5215, KL-5229, KL-5257
Michaud	Royal Victoria Minerals Ltd. "Dyment Option"	2003 (49)	OvD(4)(72m)	2.25795	KL-5202
Mickle	Canadian Prospecting Ventures Inc. "Silverclaim Property"	2002-2003 (50)	PW, Pr, rTr	2.26135	CO-2906
Midlothian	Canadian Arrow Mines Limited "Halliday Dome Project"	2001	DD(2)(382m), SA	2.25718	KL-5198
Morrisette	Gold Insight Resources Ltd. "Airport Property"	2003 (51)	Lc, M, GL	2.26489	KL-5240
Morrisette	Robinson, D.R. "Esker Park Property"	2001-2002	Lc, M	2.25159	KL-5172
Morrisette	Sutton, M.W.	2003 (52)	DD(1)(118m), SA	2.26078	KL-5225
Munro	Tom Exploration Inc. "Lalonde Gold Property"	2002-2003 (53)	Lc, IP, M, VLF-EM, R, AM, HLEM	2.25056, 2.25027, 2.25236	KL-5169, KL-5193, KL-5200
Ossian	Sampson, B.M.	2003 (54)	PW, sTr	2.25880	KL-5208
Pacaud	Globex Mining Enterprises Inc. "Laskowski Prospect"	2003 (55)	Pr, GL, SA	2.26229	KL-5232
Pacaud	Kirkland Lake Minerals Inc.	2003 (56)	sTr, SA	2.26508	KL-5243
Powell	Young Davidson Mines, Limited "Matachewan Project"	2003 (57)	DD(1)(872m), SA	2.25770	KL-5199
Shillington	Rapski, J.P.	2001	Lc, M, Gc	2.26054	CO-2907
South Lorrain	Gilead Mineral Corporation "Veinlode Property"	2002	DD(1)(513m), SA	2.25379	CO-2908
South Lorrain	Gore, J.A.	2002-2003 (58)	rTr, sTr, Pr	2.26168, 2.26550, 2.26573	CO-2909, CO-2910, CO-2911
South Lorrain	Mawhiney, C.W.	2001	Pr	2.24228	CO-2912
South Lorrain	Wolverine Exploration & Mineral Recovery "Windy Lake Claim Group"	2002	Pr, SA, Lc, M, Gc	2.25167, 2.25390	CO-2913, CO-2914
Steele	Anderson, S.D.	2001	Pr, SA	2.25775	KL-5223
Steele	Kirnova Corp.	2003 (59)	Pr	2.25891	KL-5209
Strathcona	Temex Resources Corp. "Lowell Lake Grid"	2003 (60)	Pr, RE, M, SA	2.26317	CO-2915
Strathy	Adair, A.W.	2002	Pr	2.26127	CO-2916
Strathy	Webster, B.R.	2001-2002	SA	2.24746	CO-2917

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Taylor	St Andrew Goldfields Ltd. "West Porphyry Zone"	1998-1999	DD(81)(3336lm), SA	2.24726	KL-5161
Teck	Diamond Lake Resources Inc.	2002-2003 (61)	Pr, SA, sTr	2.24343, 2.26110, 2.25774, 2.26444, 2.26595	KL-5157, KL-5227, KL-5235, KL-5238, KL-5247
Teck	Kirkland Lake Gold Inc.	2002	DD(2)(305m), SA	2.25780	KL-5203
Tyrrell	Bray, G.W.	2003 (62)	Lc, Pr, SA	2.25306	CO-2918
Tyrrell	Goldeye Exploration Limited "Hydro Creek Option"	2002-2003 (63)	Lc, M	2.25772	CO-2919
Tyrrell	Lacarte, A.	2002-2003 (64)	sTr, rTr	2.26300, 2.25464	CO-2920, CO-2921
Tyrrell	MacCallum, R.	2002	sTr, SA	2.24688	CO-2922
Tyrrell	Pinkerton, G.D.	2001-2003 (65)	Pr, sTr	2.25929, 2.25586	CO-2923, CO-2924
Tyrrell	Strike Minerals Inc.	2003 (66)	sTr, Pr, SA	2.26338	CO-2925
Tyrrell	Swain, S.L.	2002-2003 (67)	Pr, SA, Lc	2.25255, 2.25256, 2.25781, 2.25963	CO-2926, CO-2927, CO-2928, CO-2929

Table 4. Exploration activity in the Kirkland Lake Regional Resident Geologist's District - 2003.

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARA ..... Airborne radiometric survey
Beep ..... Beep Mat survey
BS ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
Gc ..... Geochemical survey
GL ..... Geological Survey
GP ..... Ground Geophysics unspecified type
Gv ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
IP ..... Induced polarization survey
Lc ..... Linecutting
M ..... Ground magnetic survey
Met ..... Metallurgical testing
OvD ..... Overburden drilling
ODH ..... Overburden drill hole(s)
PEM ..... Pulse electromagnetic survey
Pr ..... Prospecting
R ..... Resistivity survey
SA ..... Sampling (other than bulk)
Seismic ..... Seismic survey
SP ..... Self-potential survey
sTr ..... Stripping
rTr ..... Trenching
UG ..... Underground exploration/development
VLEM ..... Vertical loop electromagnetic survey
VLF-EM ..... Very low frequency electromagnetic survey

No	Company/Individual (Occurrence Name) or Property	Township/Area	Exploration Activity*
1-67	See Table 3		
68	JML Resources Ltd. (Martin River Diamond Project)	Herbert	DD(5)(643 m)
69	Temex Resources Corp. (Wilson Lake Project)	Askin, Best, Brigstocke, Chambers, Gillies Limit, Law, Milne, Strathcona, Torrington	AM, AEM, Pr, GL, SA

No	Company/Individual (Occurrence Name) or Property	Township/Area	Exploration Activity*
70	Mustang Minerals Corp. (Bannockburn Nickel Project)	Bannockburn	sTr, SA, DD(9)
71	Lake Shore Gold Corp. (Highway Gold Project)	Beatty	DD(2000 m)
72	Wallbridge Mining Company Limited (Ben Nevis Property)	Ben Nevis	DD(3)(2052 m), SA
73	Golden Valley Mines Ltd. (Amakougami)	Bernhardt	Lc, M, IP, DD(5), SA
74	Tres-Or Resources Ltd. and Rock Resources Inc. (Temagami North Diamond Project)	Bucke, Coleman, Firstbrook, Gilles Limit, Lundy, South Lorrain	DD
75	Young-Davidson Mines Limited (Oka)	Cairo, Powell	DD(34)(3566 m), SA
76	Golden Valley Mines Ltd. (Mindoka)	Catharine, Pacaud	DD
77	Dianor Resources Inc. (Cluster Project)	Davidson, Dunmore, Flavelle, Holmes, Michie, Nordica, Sheba, Truax, Terry	Lc, M, Gc, OvD
78	Liberty Minerals Exploration Inc. (McAra Lek Property)	Dufferin	DD(3)
79	GLR Resources Inc.	Eby	Lc, IP, Gc, DD(2)
80	St Andrew Goldfields Ltd. (Moneta Porcupine Mines Inc. Options)	Garrison	DD(562 m), SA, Lc, Pr, IP
81	Moneta Porcupine Mines Inc. (Golden Highway Project)	Garrison, Michaud	DD(4)(1250 m), SA, Gc, IP
82	Queenston Mining Inc. (Gauthier Twp Area)	Gauthier	DD(27), SA, IP
83	Sudbury Contact Mines Limited (Timiskaming Diamond Project)	Kerns, Lundy	DD, SA
84	Queenston Mining Inc. (Gull Lake)	Lebel	DD(1)(902 m), SA
85	Vault Minerals Inc. (Lebel Project)	Lebel	DD(9)(640 m), SA
86	International KRL Resources Corp.	Macmurchy	DD(19)(2932.3 m), SA
87	NFX Gold Inc. (Bear Lake Property)	McVittie	DD(7)(1491 m), SA
88	Acrex Ventures Ltd.	Michaud	M, IP, DD(5)(4907 m), SA
89	Tom Exploration Inc. (Lalonde Property)	Munro	DD(10000 ft.), SA, IP
90	Dianor Resources Inc.	Pacaud	Gc, M, DD(12)
91	Queenston Mining Inc. (Amalgamated Kirkland)	Teck	DD(6), SA
92	Queenston Mining Inc. (Vigrass Lake)	Teck, Otto	DD(2), SA
93	Goldeye Explorations Limited	Tyrrell	IP, sTr, SA, DD(15)(1806 m)
94	Temex Resources Corp. (Juby Gold Project)	Tyrrell	DD(26)(6363 m), SA, sTr, IP, Gc, GL

** Exploration activity is listed if known.*

Table 5. Property visits conducted by the Kirkland Lake Regional Resident Geologist and staff in 2003.

Number (keyed to Figure 2)	Property/Occurrence (MDI Number)
1	95-2, Lundy (MDI 31M12SW00017)[1]
2	96-1, Lundy (MDI 31M12SW00018)
3	Adams Mine, Boston (MDI 32D04SW00375)
4	J. R. Baily, Bryce (MDI 41P09NE00021)[1]
5	Brett-Tretheway, Clifford (MDI 32D05SW00035)
6	Cabo, Lorrain (MDI 31M05SE00170)
7	Canagau Mine, Ben Nevis (MDI 32D05SE00041)
8	Cascadia – DDHCPM-03-03, McGarry (N/A)
9	Chartre-Dufresne, Eby (N/A)
10	Childs Red Lake North, Powell (MDI 42A02SE00043)
11	A. Clark (Bear Paw Resources Inc.), Knight (NEW)[1]
12	Duggan, Knight (MDI 41P11NE00023)[1]
13	Eby Cu-Pt, Eby (NEW)
14	Extender Minerals, Yarrow (MDI 41P15NE00003)
15	Gossan, Lorrain (MDI 31M05SE00171)
16	Huston-Allsopp Property – DDH#1, Eby (N/A)
17	Hwy 560 Rhyolite, Churchill (N/A)
18	Juby Property, Tyrrell (MDI 41P10SW00013)
19	Kidston – DDHG93-1, Gauthier (N/A)
20	Kirkland Lake Minerals, Pacaud (N/A)
21	Kosy-Safo South, Catharine (MDI 31M13NE00019)
22	LaCarte North Zone, Tyrrell (MDI 41P10SW00012)
23	Laskowski, Pacaud (MDI 31M13NW00051)
24	Macassa, Teck (MDI 42A01SE00020)
25	F. Marshall, Ingram (MDI 31M13SE00010)
26	Matachewan Consolidated, Powell (MDI 41P15NE00051)
27	Matarrow, Yarrow (MDI 41P15NE00002)
28	McBean Pit, Gauthier (MDI 32D04SW00060)
29	McIntyre-McDonald, Macmurchy (MDI 41P11SE00015)
30	McKenzie, James (MDI 41P09NW00051)
31	McLean, Bucke (MDI 31M05NW00020)
32	Merico, Tudhope (MDI 41P09NW00050)
33	Miller Independence, Catharine (MDI 32D04SW00212)
34	Morris Kirkland, Lebel (MDI 32D04SW00033)
35	MR6, Hudson (MDI 31M12SW00019)
36	NDN-1, Quebec (MDI 31M12NE00007)
37	NDN-2, Quebec (MDI 31M12NE00006)
38	Onitap, Churchill (MDI 41P11SW00013)[1]
39	Peddie, Bucke (MDI 31M12NE00104)
40	Princeton Property, Gauthier (MDI 32D04SW00059)
41	J. Reed, Otto (N/A)
42	Sauve, Tudhope (MDI 41P16SE00011)
43	Seed, Firstbrook (MDI 31M05NW00018)
44	Triple B, Firstbrook (MDI 31M05NW00019)

Number (keyed to Figure 2)	Property/Occurrence (MDI Number)
45	Tyranite, Tyrrell (MDI 41P11NE00013)
46	Upper Canada, Gauthier (MDI 32D04SW00057)
47	Vigrass Lake, Teck (N/A)
48	Wadasa Gold Mines, Gauthier (MDI 32D04SW00065) [1]
49	G. Woollings Hwy 112 Property, Teck (N/A)
50	Young Davidson, Powell (MDI 41P15NE00017)

[1] *Described in "Property Examinations" section, this report.*
NEW – MDI number to be created
N/A – Does not meet the minimum requirements for an MDI

Table 6. Publications received by the Kirkland Lake Regional Resident Geologist's Office in 2003.

Title	Author	Type and Year of Publication
ASTM Building stone specifications	American National Standards Institute	American National Standards Institute, 1982 (15233)
Report of Activities 2002, Resident Geologist Program, Timmins Regional Resident Geologist Report: Timmins and Sault Ste. Marie Districts	Atkinson, B.T., Hailstone, M., Seim, G.Wm., Wilson, A.C., Draper, D.M., Farrow, D., Hope, P. and Koroschetz, A.M.	Ontario Geological Survey, Open File Report 6113, 2003 (106113)
Geological compilation of the Matachewan area, Abitibi greenstone belt	Ayer, J.A., Trowell, N.F., Josey, S., Nevills, M. and Valade L.	Ontario Geological Survey, Preliminary Map P. 3527, scale 1:100 000, 2003 (403527)
Summary of Field Work and Other Activities 2003	Baker, C.L., Kelly, R.I., Parker, J.R., Ayer, J.A. and Easton, R.M. (eds.)	Ontario Geological Survey, Open File Report 6120, 2003 (106120)
Geological synthesis of the highway 101 area, east of Matheson, Ontario	Berger, B.R.	Ontario Geological Survey, Open File Report 6091, 2002 (106091)
Terms and practices used in geology, drilling and quarry design	Borg, D.G.	Rock Products, pp. 44-47, June 1983 (15249)
Fertile peraluminous granites and related rare-element mineralization in pegmatites, Superior Province, Northwest and Northeast Ontario: Operation Treasure Hunt	Breaks, F.W., Selway, J.B. and Tindle, A.G.	Ontario Geological Survey, Open File Report 6099, 2003 (106099)
Small-scale mining using the modular gold processing unit at the Granada mine, Rouyn-Noranda, Quebec	Cabot, L., Trudel, P. and Cabot, E.	CIM Bulletin Vol. 96, No 1072, pp. 148-153, 2003 (15220)
Geological Survey - Northeastern part of Labrador, and New Quebec	Coleman, A.P.	Canada Department of Mines, Memoir 124, No. 106 Geological Series, 1921 (131124)
U-Pb ages and tectonic significance of late Archean alkalic magmatism and nonmarine sedimentation: Timiskaming Group, southern Abitibi belt, Ontario	Corfu, F., Jackson, S.L. and Sutcliffe, R.H.	Canadian Journal of Earth Sciences, vol. 28, pp. 489-503, 1991 (15231)
Geologic appraisal of dimension-stone deposits	Currier, L.W.	United States Geological Survey Bulletin 1109, 1960 (15238)
Report of Activities 2002, Resident Geologist Program, Regional Land Use Geologist Report: Northwestern, Northeastern and Southern Ontario Regions	Debicki, R.L., Drost, A.P., Hinz, P., Rowell, D.J. and Yule, G.R.	Ontario Geological Survey, Open File Report 6116, 2003 (106116)

Title	Author	Type and Year of Publication
Money and the world crisis	Denny, H.S.	Ontario Department of Mines, Bulletin No. 80, 1931 (115080)
Money and the world crisis, No. 2	Denny, H.S.	Ontario Department of Mines, Bulletin No. 93, 1934 (115093)
Report on the proposed exploration work on the Royal Victoria properties (Golden Reward Project) in the east Timmins area, Ontario	Durocher, C.A.	Royal Victoria Minerals Ltd., February 2003 (15215)
Silicification in the Amulet "rhyolite" formation, Turcotte Lake section, Noranda area, Quebec	Gibson, H.L. and Watkinson, D.H.	Current Research, Geological Survey of Canada, Paper 79-1B, p. 111-120, 1979 (15224)
The use of near surface materials in gold exploration - Kirkland Lake area, Ontario	Gleeson, C.F. and Rampton, V.N.	CIM Bulletin, vol. 80, No. 904, pp. 62-67, 1987 (15228)
Two hundred and fiftieth anniversary of nickel	Habashi, F.	CIM Bulletin, pp. 91-95, July 2001 (15213)
Dimension stone evaluation - From cradle to gravestone	Harben, P. and Purdy, J.	Industrial Minerals, pp. 47-59, February 1991 (15236)
Evaluating stone for architectural use	Harben, P. and Purdy, J.	Stone World, pp. 27-42, November 1992 (15237)
The new "Stone Age"	Harries-Rees, K.	Industrial Minerals, pp. 43-52, November 1991 (15245)
The diamond wire saw in quarrying granite and marble	Hawkins, A.C., Antenen, A.P. and Johnson, G.	Dimensional Stone, pp. 44-64, September 1990 (15235)
The effect of explosive charge on the extent of blast-induced damage in rock	Heikkila, P., Jokinen, J. and Ylatalo, K.	Helsinki University of Technology, 21 p., 1992 (15241)
Modern stone quarrying: The Finnish method	Hyysalo, H.	Dimensional Stone, pp. 60-64, September 1990 (15243)
Developments in building products: Opportunities for industrial minerals	Institute for Research in Construction (National Research Council Canada) and MATEX Consultants Inc.	Ministry of Northern Development and Mines, Industrial Mineral Background Paper 13, 1990 (15252)
The environment and the stone industry	James, N.	Dimensional Stone Magazine, pp. 53-56, March 1992 (15234)
Precambrian Geology, Shining Tree South area	Johns, G.W.	Ontario Geological Survey, Preliminary Map P.3531, scale 1:50 000, 2003 (403531)
Precambrian geology, Shining Tree area	Johns, G.W.	Ontario Geological Survey, Preliminary Map P.3521, scale 1:50 000, 2003 (403521)
The rock quarry book	Kehoe, M.	Carolrhoda Books Inc., 1981 (15239)
Hydrothermal alteration zoning and gold concentration at the Kerr-Addison Archean lode gold deposit, Kirkland Lake, Ontario	Kishida, A. and Kerrich, R.	Economic Geology, vol. 82, pp. 649-690, 1987 (15227)
The pressures of rehabilitation of mined-out sites	Kuennen, T.	Rock Products, 1982-83 (15232)
Petrology of the Archean Pontiac and Kewagama sediments and implications for the stratigraphy of the southern Abitibi belt: Reply	Lajoie, J. and Ludden, J.	Canadian Journal of Earth Sciences, vol. 22, pp. 1377-1379, 1985 (15229)
Precambrian Geology, Cairo Township	Leblanc, G. and Berger, B.R.	Ontario Geological Survey, Preliminary Map P.3522, scale 1:20 000, 2003 (403522)

Title	Author	Type and Year of Publication
Report of Activities 2002, Resident Geologist Program, Red Lake Regional Resident Geologist Report: Red Lake and Kenora Districts	Lichtblau, A., Ravnass, C., Storey, C.C., Raoul, A., Kosloski, L. and Wilson, S.	Ontario Geological Survey, Open File Report 6110, 2003 (106110)
Platinum - A collection of papers for exploration	Lovell, H.	Unpublished (15212)
Archean metavolcanics from the Rouyn-Noranda district, Abitibi Greenstone Belt, Quebec. 2. Mobility of trace elements and petrogenetic constraints	Ludden, J., Gelinas, L. and Trudel, P.	Canadian Journal of Earth Sciences, v.19, pp. 2276-2287, 1982 (15222)
Geochemistry of hydrothermally altered rocks at the Horne Mine, Noranda, Quebec	MacLean, W.H. and Hoy, L.D.	Economic Geology, v. 86, pp. 506-528, 1991 (15223)
Report of Activities 2002, Resident Geologist Program, Thunder Bay North Regional Resident Geologist Report: Thunder Bay North District	Mason, J.K., White, G.D., O'Brien, M.S. and Komar, C.	Ontario Geological Survey, Open File Report 6111, 2003 (106111)
Regional and local-scale gold grain and till geochemical signatures of lode Au deposits in the western Abitibi Greenstone Belt, central Canada	McClenaghan, M.B.	Drift Exploration in Glaciated Terrain. The Geological Society of London, Special Publications 185, pp. 201-224, 2001 (15214)
Report of Activities 2002, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts	Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Beauchamp, S. and Chaloux, E.C.	Ontario Geological Survey, Open File Report 6114, 2003 (106114)
The Proterozoic sedimentary rocks north and northeast of Sudbury, Ontario	Meyn, H.D.	Geological Association of Canada Special Paper Number 12, 1973 (15226)
Assessment of mineral potential in the BRIM/KLIP area: An investigation of integrated remote sensing and geophysical data sets	Misener, D.J.	Intera Technologies Ltd and Paterson, Grant & Watson Limited, June 1988 (15217)
Kimberlite, base metal and gold exploration targets based upon heavy mineral data derived from surface materials, Kapuskasing, Northeastern Ontario	Morris, T.F., Crabtree, D.C. and Averill, S.A.	Ontario Geological Survey, Open File Report 5967, 1998 (105967)
Structural evolution of the Hemlo greenstone belt in the vicinity of the world-class Hemlo gold deposit	Muir, T.L.	Canadian Journal of Earth Sciences, Volume 40, No. 3, pp. 395-430, 2003 (15218)
The Hemlo gold deposit, Ontario, Canada: principal deposit characteristics and constraints on mineralization	Muir, T.L.	Ore Geology Reviews, Vol. 21, Issues 1-2, pp. 1-66, 2002 (15219)
Dimension stone of Quebec: Geological aspects of commercial granite deposits	Nantel, S.	Ministrère de l'Énergie et des Ressources, Quebec (15242)
Airborne magnetic survey – Residual magnetic field, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 125, scale 1:50 000, 2003 (460125)
Airborne magnetic survey – Residual magnetic field, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 126, scale 1:50 000, 2003 (460126)
Airborne magnetic survey – Residual magnetic field, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 127, scale 1:50 000, 2003 (460127)

Title	Author	Type and Year of Publication
Airborne magnetic survey – Shaded image of the second vertical derivative of the magnetic field and Keating coefficient anomalies, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 128, scale 1:50 000, 2003 (460128)
Airborne magnetic survey – Shaded image of the second vertical derivative of the magnetic field and Keating coefficient anomalies, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 129, scale 1:50 000, 2003 (460129)
Airborne magnetic survey – Shaded image of the second vertical derivative of the magnetic field and Keating coefficient anomalies, Kenabeek - Latchford - Redwater area -- Purchased data	OGS	Ontario Geological Survey, Map 60 130, scale 1:50 000, 2003 (460130)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 753, scale 1:20 000, 2003 (481753)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 754, scale 1:20 000, 2003 (481754)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 755, scale 1:20 000, 2003 (481755)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kamiskotia Lake area	OGS	Ontario Geological Survey, Map 81 756, scale 1:50 000, 2003 (481756)
Airborne magnetic and electromagnetic surveys - Shaded image of the second vertical derivative of the magnetic field and Keating coefficient anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 757, scale 1:50 000, 2003 (481757)
Airborne magnetic and electromagnetic surveys - Apparent conductance and electromagnetic anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 758, scale 1:50 000, 2003 (481758)
Airborne magnetic and electromagnetic surveys - EM decay constant and electromagnetic anomalies, Kamiskotia area	OGS	Ontario Geological Survey, Map 81 759, scale 1:50 000, 2003 (481759)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 760, scale 1:20 000, 2003 (481760)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 761, scale 1:20 000, 2003 (481761)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 762, scale 1:20 000, 2003 (481762)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 763, scale 1:20 000, 2003 (481763)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 764, scale 1:50 000, 2003 (481764)

Title	Author	Type and Year of Publication
Airborne magnetic and electromagnetic surveys - Shaded image of the second vertical derivative of the magnetic field and Keating coefficients, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 765, scale 1:50 000, 2003 (481765)
Airborne magnetic and electromagnetic surveys - Apparent conductance and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 766, scale 1:50 000, 2003 (481766)
Airborne magnetic and electromagnetic surveys - EM decay constant and electromagnetic anomalies, Halliday Dome area	OGS	Ontario Geological Survey, Map 81 767, scale 1:50 000, 2003 (481767)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 768, scale 1:20 000, 2003 (481768)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 769, scale 1:20 000, 2003 (481769)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 770, scale 1:20 000, 2003 (481770)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 771, scale 1:20 000, 2003 (481771)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 772, scale 1:20 000, 2003 (481772)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 773, scale 1:20 000, 2003 (481773)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 774, scale 1:20 000, 2003 (481774)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 775, scale 1:20 000, 2003 (481775)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 776, scale 1:20 000, 2003 (481776)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 777, scale 1:20 000, 2003 (481777)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 778, scale 1:20 000, 2003 (481778)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 779, scale 1:20 000, 2003 (481779)
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River area	OGS	Ontario Geological Survey, Map 81 780, scale 1:50 000, 2003 (481780)

Title	Author	Type and Year of Publication
Airborne magnetic and electromagnetic surveys - Residual magnetic field and electromagnetic anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 781, scale 1:50 000, 2003 (481781)
Airborne magnetic and electromagnetic surveys - Shaded image of the second vertical derivative of the magnetic field with Keating coefficient anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 782, scale 1:50 000, 2003 (481782)
Airborne magnetic and electromagnetic surveys - Shaded image of the second vertical derivative of the magnetic field with Keating coefficient anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 783, scale 1:50 000, 2003 (481783)
Airborne magnetic and electromagnetic surveys - Apparent conductance and EM anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 784, scale 1:50 000, 2003 (481784)
Airborne magnetic and electromagnetic surveys - Apparent conductance and EM anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 785, scale 1:50 000, 2003 (481785)
Airborne magnetic and electromagnetic surveys - EM decay constant (tau) and EM anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 786, scale 1:50 000, 2003 (481786)
Airborne magnetic and electromagnetic surveys - EM decay constant (tau) and EM anomalies, Kidd-Munro, Blake River Area	OGS	Ontario Geological Survey, Map 81 787, scale 1:50 000, 2003 (481787)
Quarrying building stone	O'Neill, H.	Stone for Building, British Stone Federation, pp. 58-85 (15240)
Evidence for contrasting compositional spectra in comagmatic intrusive and extrusive rocks of the late Archean Blake River Group, Abitibi, Quebec	Paradis, S., Ludden, J. and Gelinas, L.	Canadian Journal of Earth Sciences, vol. 25, pp. 134-144, 1988 (15230)
Barite in British Columbia	Richmond, A.M.	Non-Metallic Mineral Investigations, Report No. 1, British Columbia Department of Mines, 1932 (141003)
Asbestos in British Columbia	Richmond, A.M.	Non-Metallic Mineral Investigations, Report No. 2, British Columbia Department of Mines, 1932 (141004)
Magnesite and hydro-magnesite in British Columbia	Richmond, A.M.	Non-Metallic Mineral Investigations, Report No. 5, British Columbia Department of Mines, 1932 (141005)
Review of the mineral resources and mineral reserves of the Macassa Mine Property, Kirkland Lake, Ontario	Routledge, R.E.	Roscoe Postle Associates Inc., 66p., December 2002 (15216)
Rocks and minerals for the collector - Kirkland Lake – Rouyn-Noranda – Val-d'Or, Ontario and Quebec	Sabina, Ann P.	Geological Survey of Canada Miscellaneous Report 77 (2 copies English/French), 308p., 2003 (147077)
The cutting edge of quarrying technology	Sailer, J.	Stone World, pp. 41-56, January 1989 (15247)
Report of Activities 2002, Resident Geologist Program, Southern Ontario Regional Resident Geologist Southeastern and Southwestern Districts, MMIC	Sangster, P.J., McGuinty, W.J., Papertzian, V.C., Steele, K.G., Lee, C.R., Barua, M., Laidlaw, D.A. and Carter, T.R.	Ontario Geological Survey, Open File Report 6115, 2003 (106115)

Title	Author	Type and Year of Publication
Report of Activitites 2002, Resident Geologist Program, Thunder Bay South Regional Resident Geologist Report: Thunder Bay South District	Schnieders, B.R., Scott, J.F., Smyk, M.C. and O'Brien, M.S.	Ontario Geological Survey, Open File Report 6112, 2003 (106112)
Geochemistry and metallogenesis of komatiitic rocks in the Abitibi Greenstone Belt, Ontario	Sproule, R.A., Lesher, C.M., Ayer, J.A. and Thurston, P.C.	Ontario Geological Survey, Open File Report 6073, 2003 (106073)
Aggregate quality and quantity requirements and cost considerations for highway construction in Ontario (1988-1991)	Szoke, S.I. and Katona, Z.L.	Ontario Ministry of Transportation – Soils and Aggregates Section, Report MI-163, 1993 (15248)
Investigation of mafic-ultramafic intrusions in Ontario and implications for platinum group element mineralization: Operation Treasure Hunt	Vaillancourt, C., Sproule, R.A., MacDonald, C.A. and C.M. Lesher	Ontario Geological Survey, Open File Report 6102, 2003 (106102)
Criteria for quarry development in southeastern Ontario	Verschuren, C.P., Kingston, P.W. and Caley, W.F.	CIM Bulletin, pp. 55-60, February 1989 (15244)
The early stages of building stone decay in an urban environment	Viles, H.A.	Atmospheric Environment, Vol 24A, No. 1, pp. 229-232, 1990 (15246)
Shortite in kimberlite from the Upper Canada gold mine, Ontario	Watkinson, D.H. and Chao, G.Y.	Journal of Geology, Vol. 81, p. 229-233, 1973 (15221)

Table 7. Mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist District in 2003.

Abbreviations

AF ..... Assessment Files
CMH ..... Canadian Mines Handbook
GR ..... Geological Report
MDC ..... Mineral Deposit Circular
MDIR ..... Mineral Deposit Inventory record
MLS ..... Mining Lands, Sudbury
MR ..... Mining Recorder
NM ..... The Northern Miner
OFR ..... Open File Report
PC ..... Personal Communication

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
180 East (Lebel)	Au 32D04SW00339	Mineral resource measured + indicated 326 700 t @ 4.1 g/t Au*	Queenston Mining Inc. (CMH 2003-2004, p.419)	Queenston Mining Inc. website 2004	Inactive
Adams Mine (Boston, Lebel)	Fe 32D04SW00013	12 years open pit reserves at time of mine closure.	N/A	N/A	Inactive
Ajax (Strathy)	Cu, Ni, Au, Ag, PGE 31M04SW00022	Drill proven + indicated resource 2 062 505 tons of 0.412% Cu, 0.257% Ni	Northern Platinum Ltd. (55%) (CMH 2003-2004, p. 373)	CMH 2003-2004, p. 373	Inactive
Amalgamated Kirkland (Teck)	Au 42A01SE00151	Mineral resource inferred 2 639 338 t @ 4.5 g/t Au*	Queenston Mining Inc. (CMH 2003-2004, p.419)	Queenston Mining Inc. website 2004	Active
Anoki (Gauthier)	Au 32D04SW00069	Mineral resource measured + indicated 1 072 260 t @ 4.1 g/t Au*	Queenston Mining Inc. (CMH 2003-2004, p.419)	Queenston Mining Inc. website 2004	Active

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Armistice (McGarry)	Au 32D04SE00013	Probable resource of 433 981 tons @ 0.250 ounce/ton Au	Armistice Resources Ltd. (75%) – Sheldon-Larder Mines Limited (CMH 2003-2004, p.50)	CMH 2003-2004, p.50	Inactive
Barber Larder (McGarry)	Au 32D04SE00043	60 000 tons of 0.16 oz per ton Au	NFX Gold Inc. (56.25%) (CMH 2003-2004, p.354)	CMH 1990-91, p.338	Inactive
Black Fox Project (Hislop, Beatty)	Au 42A09SW00165	Mineral reserve proven + probable 2 953 000 t @ 4.81 g/t Au*	Apollo Gold Corporation (CMH 2003-2004, p. 43)	Apollo Gold Corporation Press Release February, 26, 2004	Active
Blue Quartz (Beatty)	Au 42A09SW00130	109 000 tons of 0.484 oz per ton Au	Thundermin Resources Ltd. (50%) (CMH 2003-2004, p.491)	NM, March 20, 1980	Inactive
Boston Creek (Pacaud)	Au 31M13NW00053	330 000 tonnes of 4.2 g/T Au	Atapa Minerals Limited (50%) (CMH 2003-2004, p.54)	CMH 1998-99, p.52	Inactive
Buffonta (Garrison)	Au 32D05NW00009	400 000 tons of 0.15 oz per ton Au	Gwen Resources Ltd (60%) - AJ Perron Gold Corporation (40%)(CMH 1996-97, p.26)	CMH 1997-98, p.221	Inactive
Cheminis (McVittie)	Au 32D04SE00019	Mineral resource measured + indicated 1 619 082 tons @ 0.18 ounce/ ton Au. Mineral resource inferred 924 275 t @ 0.19 ounce/ton Au*	NFX Gold Inc. (NFX Press Release November 11, 2003)	NFX Gold Inc. Press Release January 8, 2004	Inactive
Clenor (Strathy)	Au, Ag 31M04SW00088	24 000 tons of 0.21 oz per ton Au, 1.8 oz per ton Ag	Gwen Resources Ltd. (CMH 1997-98, p.220)	GR 163	Inactive
Commodore (Lebel)	Au 32D04SW00039	738 000 tons of 0.07 oz per ton Au inferred with a higher grade zone of 307 000 tons of 0.11 oz Au per ton inferred	H.Egg, AF (Sudbury Contact Mines Limited AF KL-4447)	AF KL-4447	Inactive
Creek Zone (Hislop)	Au 42A08NW00142	1.1 million tons of 0.186 oz per ton Au	Stroud Resources Ltd. (CMH 2003-2004, p.475)	CMH 2001-2002, p.352	Inactive
Diadem (Strathcona)	Cu, Ni 31M04SW00077	450 000 tons of 0.5% Cu, 0.1% Ni to 400 feet	Temex Resources Corp. (CMH 2003-2004, p.486)	MDIR N 0045	Active

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Duggan Zone (Knight)	Au 41P11NE000023	1 114 000 tons of 0.07 oz per ton Au	Rosko, P.	George Cross Newsletter Ltd., No 39, February 25, 1997	Active
Eastmaque (Teck)	Au 42A01NE00043	2 132 500 tons of tailings of 0.035 oz per ton Au	Hecla Mining Company (Eastmaque to Equinox Resources Ltd to Hecla in 1994) (CMH 1996-97, p.207-208)	CMH 1991-92, p.142	Inactive
Fenn-Gib (Guibord)	Au 42A09SE00054 42A09SE00187	1.95 million t of 5.13 g/t Au above 250 m level	Barrick Gold Corp. (100% Gib, 70% Fenn, 30% Homestake Canada Inc.) (CMH 2000-2001, p.312, 2002-2003, p. 333)	CMH 2000-2001, p.312	Inactive
Fort Knox (Fawcett, Ogilvie, North Williams)	Cu, Ni NEW	750 000 tons	FNX Mining Company Inc. (CMH 2003-2004, p.194)	AF	Inactive
Garrcon (Garrison)	Au 32D12SW00004	350 900 tons of 0.191 oz per ton Au	Moneta Porcupine Mines Inc. – Jonpol Explorations Limited (OFR 5735, p. 766, CMH 2001-2002, p.249)	Jonpol Explorations Limited News Release, February 2, 1988	Active
Golden Harker (Harker, Holloway)	Au 32D05NW00159	500 000 tons of 0.16 oz per ton Au	Golden Harker Explorations Limited (CMH 2003-2004, p.222)	NM, March 7, 1988	Inactive
Gordon Lake (Tyrrell)	Au 41P10NW00006	225 000 tons of 0.20 oz per ton Au to 750 feet	Duncan Gold Resources Inc. – Dalhousie Oil Company Ltd. (AF)	AF	Inactive
Hislop Gold Mine (Hislop)	Au	Mineral resource indicated + inferred 160 000 tons avg. 0.33 oz per ton Au*	St Andrew Goldfields Ltd. (CMH 2003-2004, p.441)	CMH 2003-2004, p.441	Inactive
Hislop West (Hislop)	Au 42A09SW00033	334 882 tons @ 0.178 ounce per ton Au	N/A	OFR 5958, p. 7-22	Inactive
Iris (Harker)	Au, W 32D05NW00021	769 756 tons of 0.07 oz per ton Au	The Alberta Gold Corporation (55%) – Perrex Resources Inc. (45%) (CMH 1995-96 p.289)	AF KL-3170	Inactive
Juby (Tyrrell)	Au 41P10SW00015	2 200 000 t of 4.65 g/t Au	Temex Resource Corp (Press Release June 13, 2002)	Goldeye Explorations Limited Press Release September 18, 2002	Active

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
LaCarte (Tyrrell)	Au 41P11NE00024	600 000 t @ 6 g/t Au	Goldeye Explorations Ltd. Press Release November 05, 2002	Goldeye Explorations Ltd. Press Release November 05, 2002	Active
Leckie (Strathy)	Au 31M04SW00090	405 000 tons of 0.2 oz per ton Au	Stroud Resources Ltd. (CMH 2003-2004, p.475)	CMH 2000-2001, p.372	Inactive
Ludgate (Michaud, Guibord, Garrison)	Au 42A08NE00159	462 000 tonnes of 5.91 g/t Au	Kinross Gold Corporation (60%) – Coniagas Resources Limited (40%) (CMH 2003-2004, p.133)	TNM February 1, 1999 p. 2.	Inactive
Martin-Bird (Hearst)	Au 32D04SE00143	558 000 tons of 0.114 oz per ton Au	Barrick Gold Corporation (AF KL-3752)	AF KL-3752	Inactive
Matachewan (Cairo, Powell, Yarrow)	Au 41P15NE00014 41P15NE00017	Open pit inventory of 9 107 450 tons @ 0.042 ounce per ton Au and underground inventory of 9 062 065 tons @ 0.10 ounce per ton Au	Young-Davidson Mines, Limited (CMH 2003-2004, p.534)	Geological report and valuation estimate, May 10, 2002	Active
McBean (Gauthier)	Au 32D04SW00060	Mineral resource measured + indicated 835 520 t @ 5.1 g/t, Mineral resource inferred 1 835 230 t @ 6.5 g/t*	Queenston Mining Inc. (CMH 2003-2004, p.419)	Queenston Mining Inc. website 2002	Inactive
Newfield (Garrison)	Au 32D12SW000042	450 000 tons of 0.28 oz per ton Au	Jonpol Explorations Limited (58.6%) – Aurado Exploration Ltd. (41.4%) (CMH 2003-2004, p.278)	CMH 1996-97, p.243 and Jonpol Explorations Limited, Project Progress Report, April 10, 1997	Inactive
Omega (McVittie)	Au 32D04SE00017	720 854 tons of 0.16 oz per ton Au	GLR Resources Inc. (CMH 2003-2004, p.213)	CMH 2003-2004, p.213	Inactive
Potter (Munro)	Cu, Zn, Ag, Au, Co 42A09SE00015	Not available	Millstream Mines Ltd. (CMH 2003-2004, p.326)	Not available	Inactive
Ramp Property (Beatty, Carr, Coulson, Wilkie)	Au 42A09SW00133	813 414 tons of 0.235 ounce per ton Au	Globex Mining Enterprises Inc. (CMH 2003-2004, p.212)	Globex Mining Enterprises Inc. website 2002	Inactive
Ross (Hislop)	Au 42A08NW00005	1 055 000 tons of 0.125 oz per ton Au	Preston Electrical and Mechanical Ltd. (sold by Giant Yellowknife Mines Limited in 1989 CMH 1990-91, p.188)	CMH 1989-90, p.188	Inactive

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Sherman Mine (Chambers, Strathcona, Strathy)	Fe 31M04SW00025	5 years open pit reserves at time of mine closure. Underground resources unknown.	N/A	Northern Daily News, March 7, 1989	Inactive
Southwest Zone (Michaud)	Au 42A08NE00038	2 360 000 t avg. 6.07 g/t Au	Moneta Porcupine Mines Inc. (CMH 2002-2003, p.280)	CMH 2002-2003, p.280	Active
Taylor (Taylor)	Au 42A10SE00066 42A10SE00065	West Porphyry – mineral resource indicated 735 000 t @ 9.5 g/t Au, mineral resource inferred 631 000 t @ 9.9 g/t Au* Shoot – mineral resource indicated 670 000 t @ 5.5 g/t Au, mineral resource inferred 106 000 t @ 5.2 g/t Au*	St Andrew Goldfields Ltd. (CMH 2003-2004, p.441)	St Andrew Goldfields Ltd. Press Release November 26, 2003	Inactive
Teck Hughes (Teck)	Au 42A01NE00020	375 000 tons of 0.2 oz per ton Au	Kirkland Lake Gold Inc. (CMH 2003-2004, p.289)	CMH 1991-92, p.270	Active
Temagami Copper (Phyllis)	Cu, Ni 41I16NE00004	770 000 tons of 1.04% Cu, 0.46% Ni	N/A	AF	Inactive
Tyranite (Tyrrell, Knight)	Au 41P11NE00013	567 000 tons of 0.18 oz per ton Au	Mill City International Inc. (50%) – Tyranex Gold Inc. (CMH 2003-2004, p.326)	NM 06/93	Inactive
Upper Beaver (Gauthier)	Au, Cu 32D04SW00068	Mineral resource indicated 181 437 t of 7.9 g/t Au, 1.2% Cu*	Queenston Mining Inc. (CMH 2003-2004, p.419)	CMH 2003-2004, p.419	Inactive
Upper Canada (Gauthier)	Au 32D04SW00057	Mineral resource measured + indicated 1 899 973 t @ 6.9 g/t Au*	Queenston Mining Inc. (CMH 2003-2004, p.419)	Queenston Mining Inc. website 2004	Inactive
Victoria Creek (Gauthier)	Au NEW	4 958 000 t of 3.43 g/t Au	Sudbury Contact Mines Limited (CMH 2002-2003, p.398)	CMH 1998-99, p.429	Inactive

Note: Other than figures marked by an asterisk (*) in the "Tonnage-Grade Estimates and/or Dimensions" column, the resource estimates in this table do not follow the required disclosure for reserves and resources as outlined in National Instrument 43-101 and are historic figures generated by past workers.

Table 8. Summary of activities of the Kirkland Lake Regional Resident Geologist's Office - 2003.

Activity	Number
Office Visits	2745
Telephone Inquiries	1645
Properties Visited	50
Field Trips Attended	22
Field Trips Given	8
Talks Given	5
Assessment Files & Donations Processed	198
OPAP/Heritage Fund Reports Processed	0
Titles Added to Library Database	103
Drill Holes Added to Drill Core Library	0
MDI Records Updated	7
MDI Records Deleted	2
MDI Records Added	25
MDI Records Deepened	47

Table 9. Historical gold production in the Kirkland Lake Regional Resident Geologist's District – 2003.

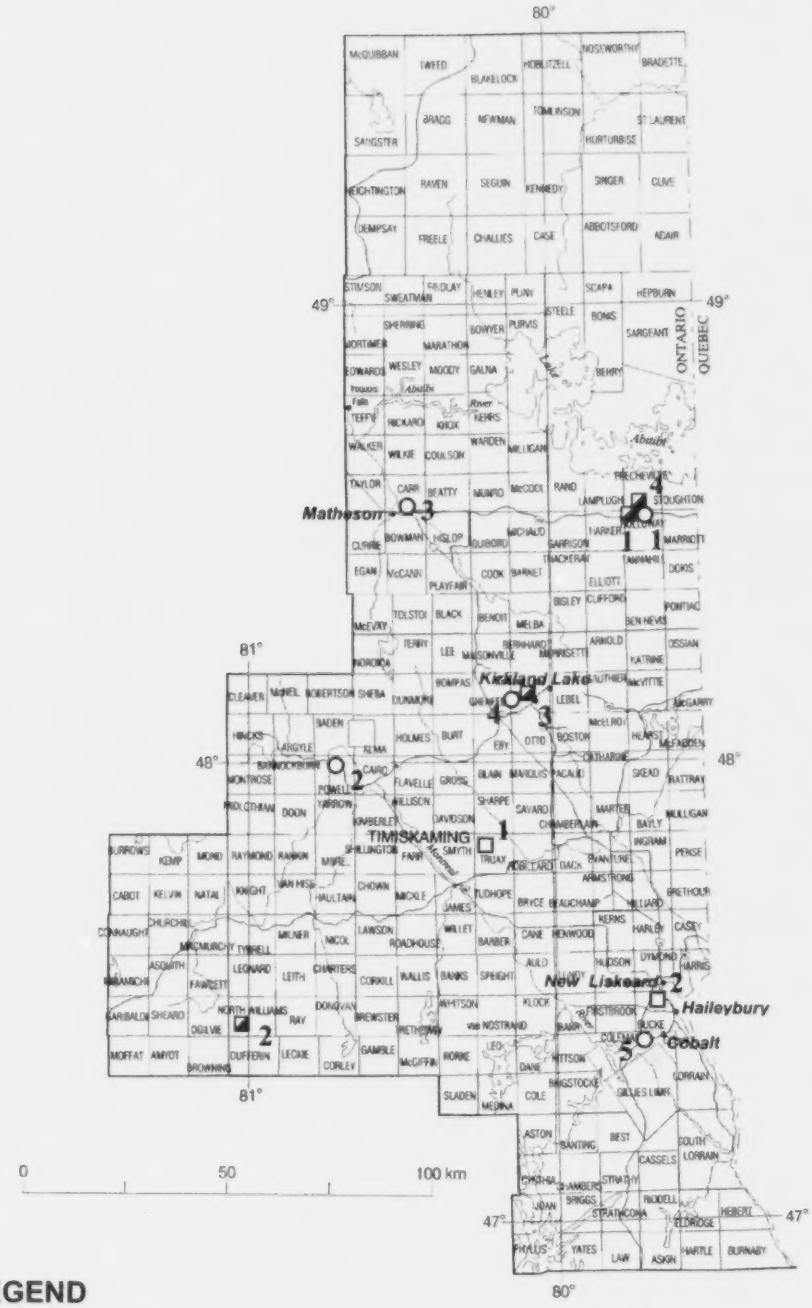
Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
Aljo	Beatty	2,333	42	0.018	1940
American Eagle	Munro	60	40	0.667	1911
Argyll	Beatty	12,455	851	0.068	1918
Armistice	McGarry	8,282	1,035	0.125	1995, 97 (bulk samples)
Ashley	Bannockburn	157,076	50,123	0.319	1932-36
Barber Larder	McGarry	30,118	3,072	0.102	1988
Barry Hollinger	Pacuad	267,741	77,000	0.288	1918,25-36,44-46
Bidgood	Lebel	586,367	160,184	0.273	1934-51
Blue Quartz	Beatty	500	81	0.162	1923,26,28,34
Bourkes	Benoit	1,298	277	0.213	1918,36-38
Buffonta	Garrison	117,013	12,139	0.104	1981,91-92
Canadian Arrow	Hislop	279,593	17,045	0.061	1980-83
Canamax (Matheson Project)	Holloway	38,675	5,391	0.139	1988
Cathroy Larder (Mirado)	McElroy	89,719	10,231	0.114	1941-44,47,57,87
Centre Hill**	Munro	327,007	422	0.001	1967-70
Cheminis	McVittie	179,013	17,530	0.098	1991-96
Chesterville	McGarry	3,260,439	358,880	0.110	1930-52
Croesus	Munro	5,333	14,859	2.786	1915-18,23,31-36
Eastmaque (tailings)	Teck	1,051,744	28,740	0.027	1988-91
Ethel Copper**	James	17,477	115	0.007	1962-67
Gateford (Swastika)	Teck	103,684	30,068	0.290	1910-47***
Glimmer	Hislop	1,212,592	209,926	0.173	1997-2001
Golden Summit	Maisonville	737	57	0.077	1936-37,45
Gold Hill	Catharine	4,616	660	0.143	1927-28
Gold Pyramid	Guibord	175	36	0.206	1911
Hislop Mine (Hislop East)	Hislop	388,724	48,679	0.125	1990-91,93-95,99-2000
Holloway Mine*	Holloway	4,164,401	703,748	0.169	1993,95(preproduction),96-
Holt-McDermott*	Holloway	7,784,999	1,267,754	0.163	1988-
Hudson-Rand	Teck	6,496	483	0.074	1922

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
Kerr	McGarry	40,336,512	10,457,441	0.259	1911,38-96
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	1916-60
Kirkland Lake Gold*	Teck	75,707	24,598	0.325	2002-
Kirkland Townsite	Teck	4,230	1,921	0.454	1958-59
Laguerre	McVittie	40,514	7,568	0.187	1937-39
Lake Shore	Teck	17,208,323	8,602,791	0.500	1918-65,82-87,97-98
Macassa	Teck	7,877,532	3,525,389	0.448	1933-99
Macassa (Tailings)	Teck	3,240,890	173,659	0.054	1987-99,02
Matachewan Consolidated	Powell	3,631,908	385,503	0.106	1934-54,80-82
McBean	Gauthier	557,621	45,900	0.082	1984-86
Miller Independence	Pacaud	31	59	1.903	1918
Moffat-Hall	Lebel	16,388	4,780	0.292	1934-35
Morris Kirkland	Lebel	127,253	16,999	0.134	1936-38,40-42
New Telluride	Skead	104	62	0.596	1931-32
Newfield	Garrison	55,000	9,680	0.176	1996(bulk sample)
Omega	McVittie	1,615,081	214,098	0.133	1913,26-28,36-47
Queenston	Gauthier	1,054	177	0.168	1941
Ronda	Macmurchy	24,592	2,727	0.111	1939
Ross	Hislop	6,714,482	995,832	0.148	1936-89
Ryan Lake**	Powell	188,790	1,352	0.007	1948-57,62-64
Stairs	Midlothian	15,835	3,573	0.226	1965-66
Sylvanite	Teck	5,049,536	1,674,808	0.332	1927-61
Teck Hughes	Teck	9,565,302	3,709,007	0.388	1917-68
Toburn	Teck	1,186,316	570,659	0.481	1917-53***
Tyranite	Tyrrell	223,810	31,352	0.140	1939-42
Upper Beaver	Gauthier	580,562	140,709	0.242	1913-72***
Upper Canada	Gauthier	4,648,984	1,398,291	0.301	1938-71
White-Guyatt	Munro	50	10	0.200	1911
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	1921-65
Young Davidson	Powell	6,218,272	585,690	0.094	1934-57
Total including tailings		**142,377,956**	**41,598,354**	**0.292**	
Total excluding tailings		**138,085,322**	**41,395,955**	**0.300**	
Kirkland Lake Camp (West to East)					
Macassa	Teck	7,877,532	3,525,389	0.448	
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	
Kirkland Lake Gold*	Teck	75,707	24,598	0.325	
Teck Hughes	Teck	9,565,302	3,709,007	0.388	
Lake Shore	Teck	17,208,323	8,602,791	0.500	
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	
Sylvanite	Teck	5,049,536	1,674,808	0.332	
Toburn	Teck	1,186,316	570,659	0.481	
Total		**54,037,326**	**24,101,503**	**0.446**	
Kirkland Lake Tailings					
Eastmaque (Tailings)	Teck	1,051,744	28,740	0.027	
Macassa (Tailings)	Teck	3,240,890	173,659	0.054	
Total		**4,292,634**	**202,399**	**0.047**	

KIRKLAND LAKE DISTRICT – 2003

Mine	Township	Tons Milled	Production (oz. Au)	Grade (oz./T)	Years of Production
Virginiatown Camp					
Chesterville	McGarry	3,260,439	358,880	0.110	
Kerr	McGarry	40,336,512	10,457,441	0.259	
Total		**43,596,951**	**10,816,321**	**0.248**	
Holloway Camp					
Holloway Mine*	Holloway	4,164,401	703,748	0.169	
Holt-McDermott*	Holloway	7,784,999	1,267,754	0.163	
Total		**11,949,400**	**1,971,502**	**0.165**	
Hislop Camp					
Glimmer	Hislop	1,212,592	209,926	0.173	
Hislop Mine (Hislop East)	Hislop	388,724	48,679	0.125	
Ross	Hislop	6,714,482	995,832	0.148	
Total		**8,315,798**	**1,254,437**	**0.151**	
Matachewan Camp					
Matachewan Consolidated	Powell	3,631,908	385,503	0.106	
Young Davidson	Powell	6,218,272	585,690	0.094	
Total		**9,850,180**	**971,193**	**0.099**	
Shining Tree Camp					
Ronda	Macmurchy	24,592	2,727	0.111	
Tyranite	Tyrrell	223,810	31352	0.140	
Total		**248,402**	**34,079**	**0.140**	

* *Producer in 2003*
** *Base Metal Production*
*** *Intermittent Production*



LEGEND

Producing Mines

1. Barrick Gold Corporation - Holt-McDermott Mine (gold)
2. Extender Minerals of Canada Ltd. - North Williams Mine (barite)
3. Kirkland Lake Gold Inc. - Kirkland Lake Properties (gold)
4. Newmont Mining Corporation and Teddy Bear Valley Mines Limited - Holloway Mine (gold)

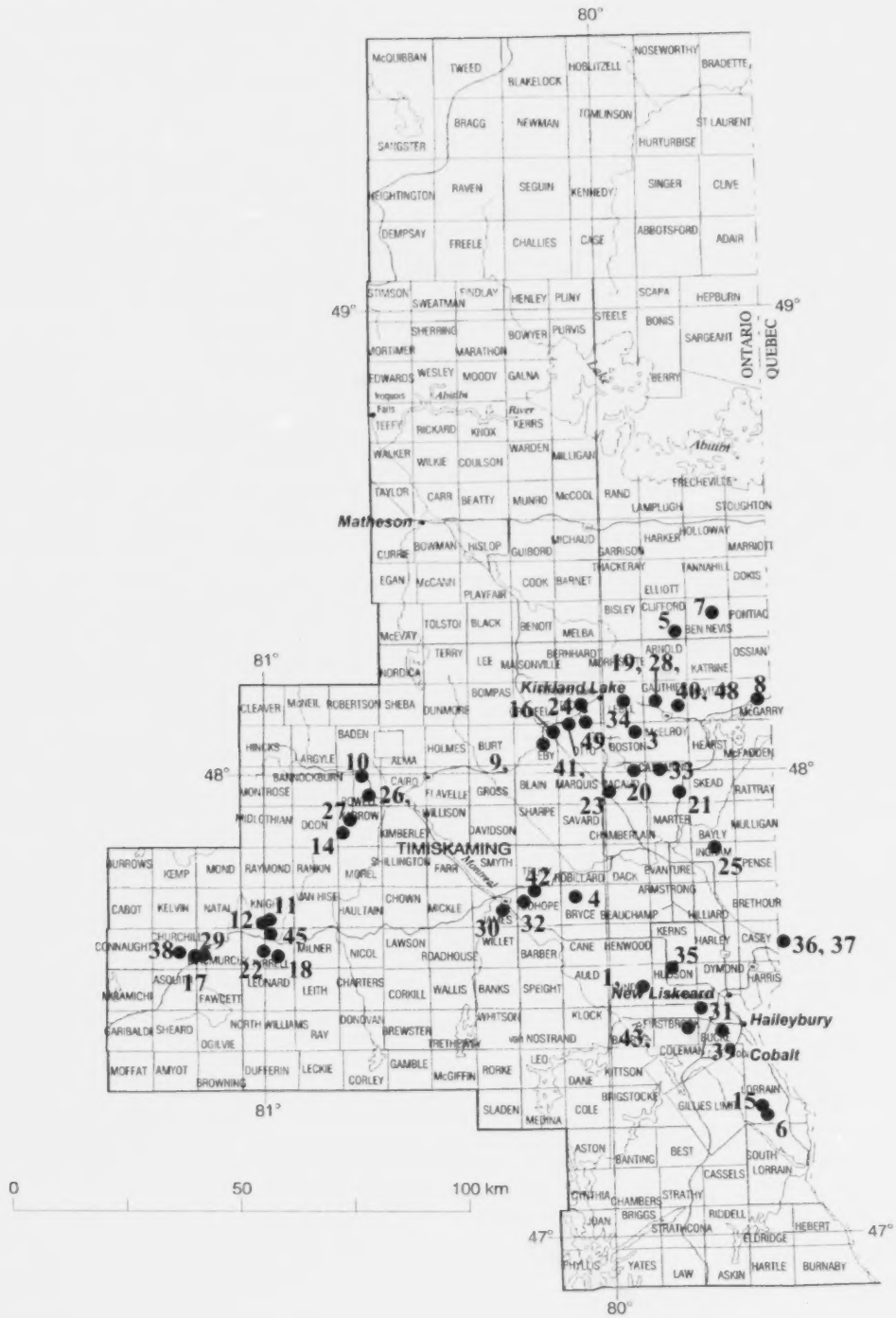
Quarries

1. Kirkland Lake Rocks - Various Quarries (crushed stone)
2. Miller Minerals - Bucke Quarry (limestone)

Mills

1. Barrick Gold Corporation (gold)
2. Extender Minerals of Canada Ltd. (barite)
3. Hedman Resources Limited (serpentine)
4. Kirkland Lake Gold Inc. (gold)
5. SMC (Canada) Ltd. (recycled precious metals)

Figure 1. Mining and milling in the Kirkland Lake District – 2003.



LEGEND

● Property visits - see Table 5

Figure 2. Property visits in the Kirkland Lake District – 2003.

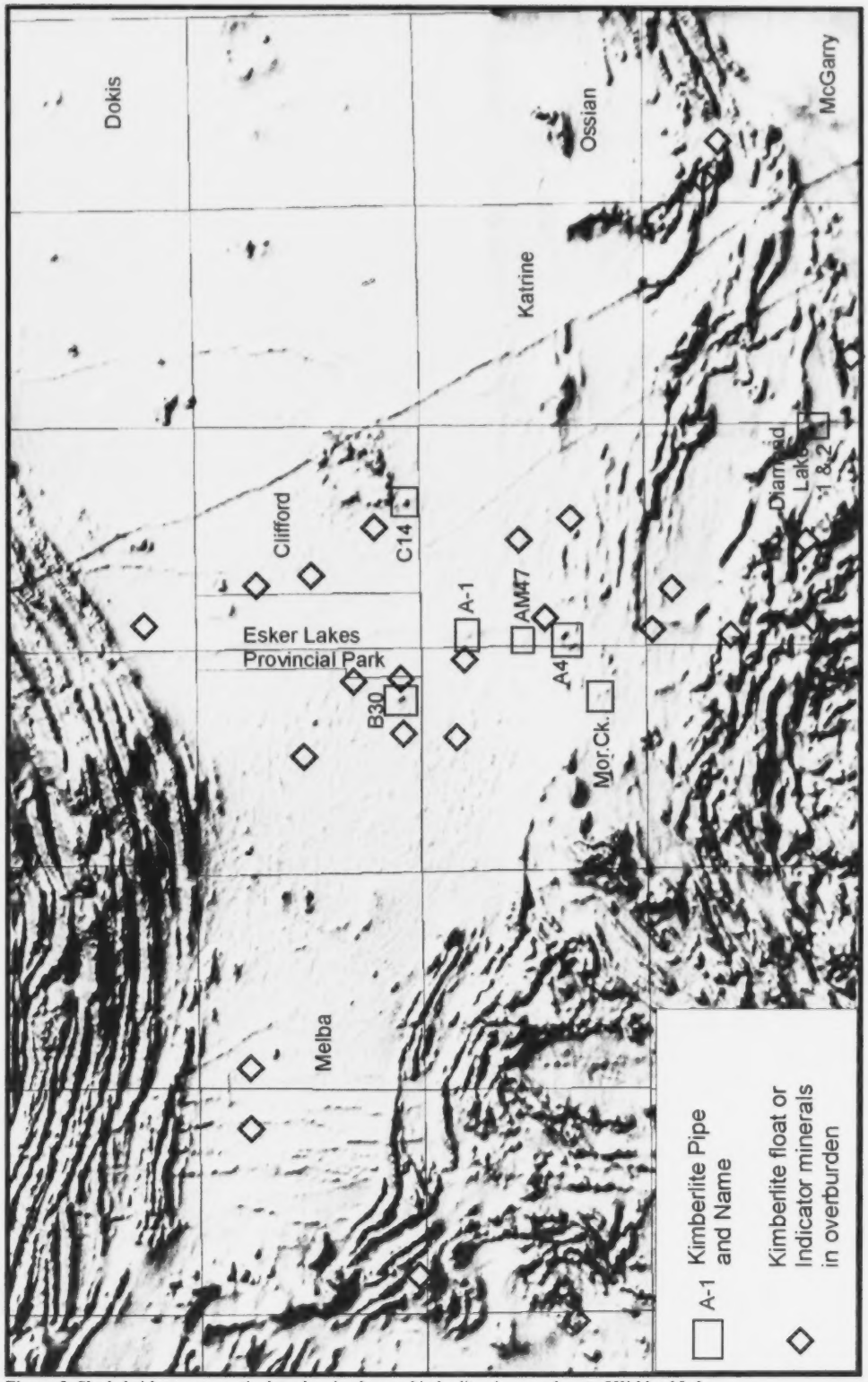


Figure 3. Shaded airborne magnetic data showing known kimberlite pipes northeast of Kirkland Lake.

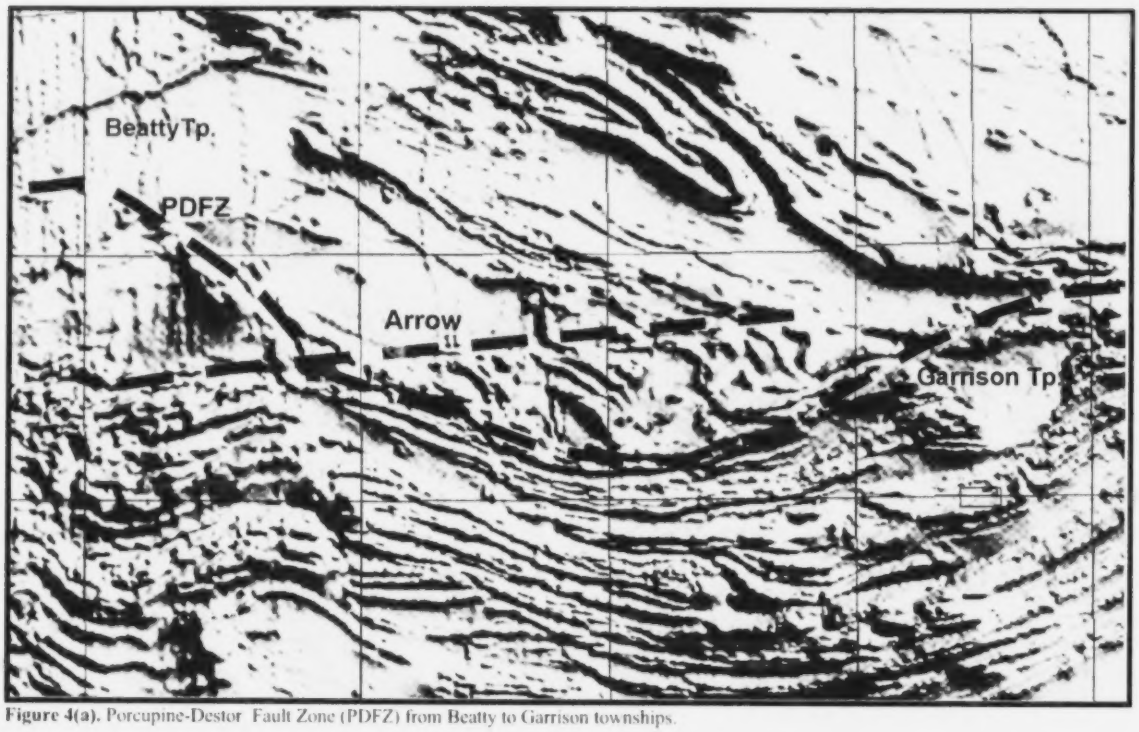


Figure 4(a). Porcupine-Destor Fault Zone (PDFZ) from Beatty to Garrison townships.

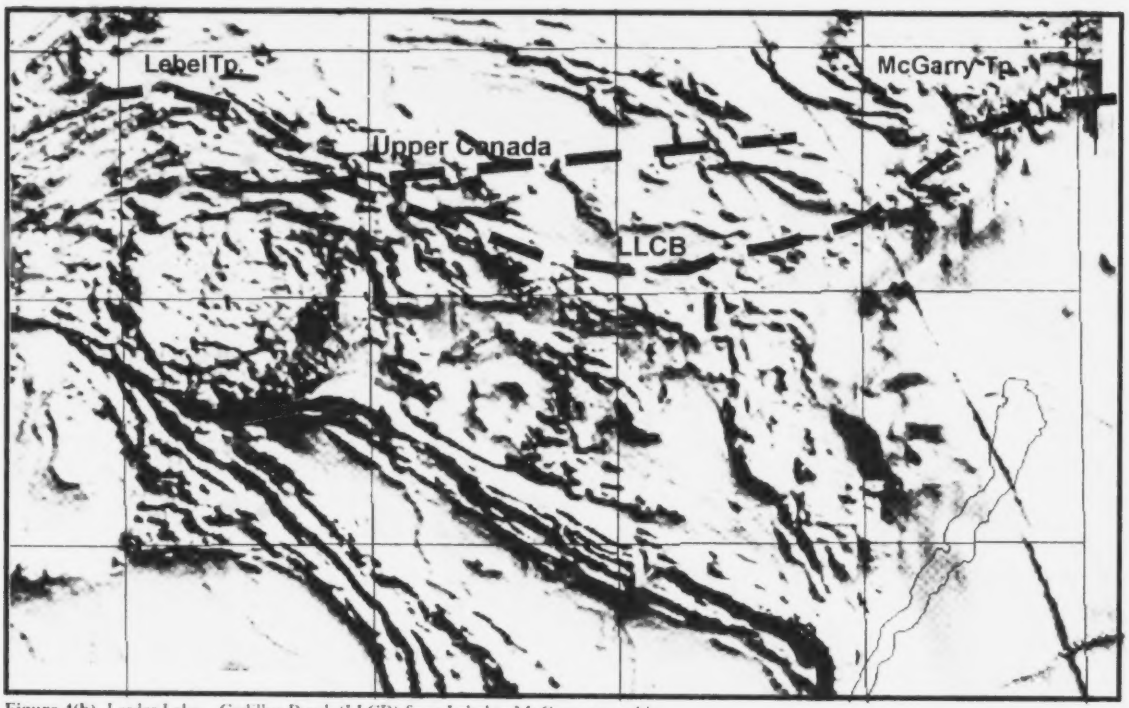


Figure 4(b). Larder Lake – Cadillac Break (LLCB) from Lebel to McGarry townships.

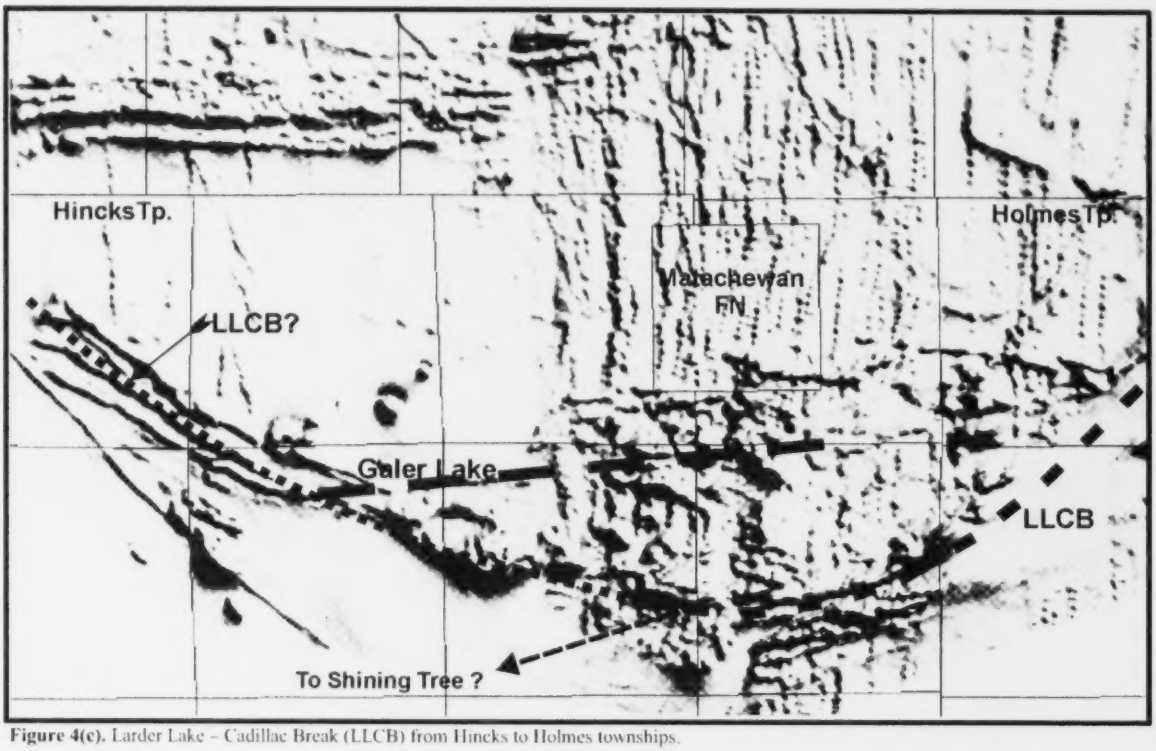


Figure 4(c). Larder Lake – Cadillac Break (LLCB) from Hincks to Holmes townships.

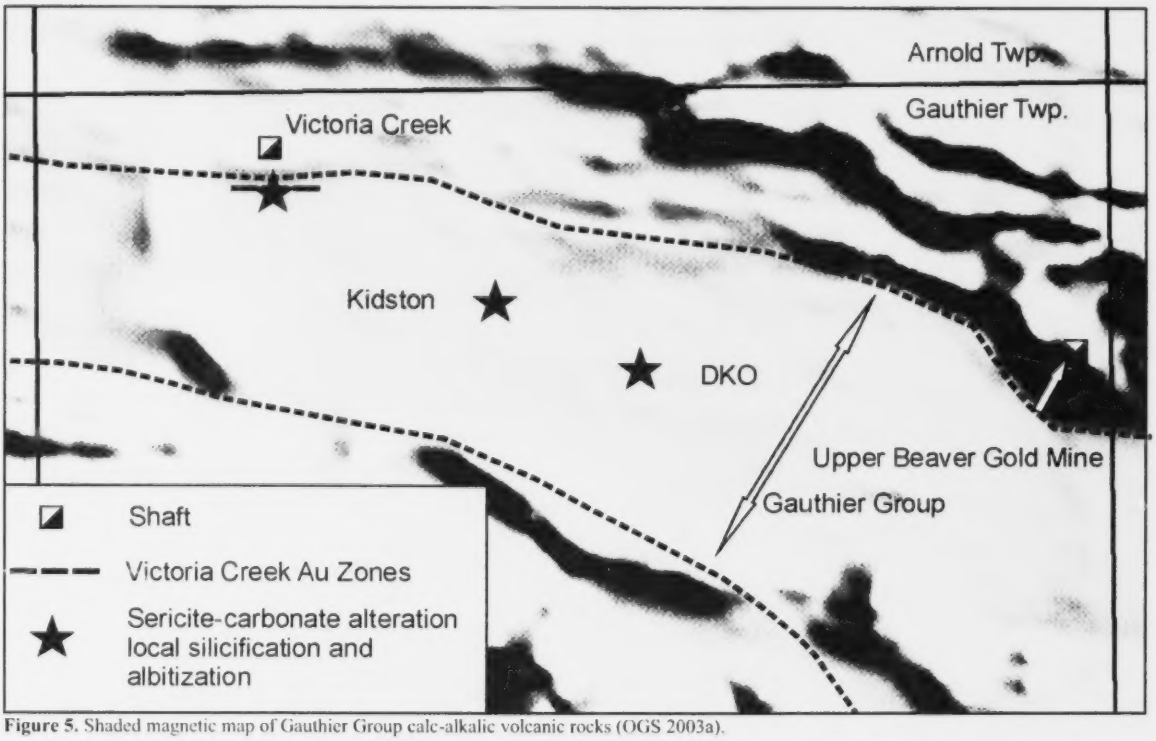


Figure 5. Shaded magnetic map of Gauthier Group calc-alkalic volcanic rocks (OGS 2003a).

Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
		LENGTH			
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
		AREA			
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
		VOLUME			
1 cm^3	0.061 023	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m^3
		CAPACITY			
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
		MASS			
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	**31.103 476 8**	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	**907.184 74**	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 90**	t
		CONCENTRATION			
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

	Multiplied by	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.

ISSN 1484-9453
ISBN 0-7794-5872-9